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SOME CLINICAL ASPECTS OF PITUITARY BASOPHILISM

ROBERT C. MOEHLIG, M.D.
DETROIT, MICHIGAN

It is always opportune in medicine to become retrospective and see how our viewpoints have changed with the addition of knowledge. From a wilderness of perplexities we have now gathered a storehouse of facts. It is but a short time ago when the diagnosis of appendicitis called for abscess formation, when a brain tumor meant choked disc, projectile vomiting and headache. In our own field of endocrinology the diagnosis of hyperthyroidism, for example, necessitated the presence of tremor, tachycardia, loss of weight and an array of symptoms which we now know are not essential to this diagnosis.

This improvement in diagnostic skill is, of course, due to the painstaking observations of many investigators. The thyroid, because of its accessibility and its comparatively easy removal in man and animals, has lent itself to investigative physiological studies and so our knowledge of this gland's functions is on a very high plane.

The pituitary gland, so well hidden through its inaccessibility, has been slower in surrendering its secrets, but here too the riddle of its functions is no longer as baffling as it was some five years ago. Therefore, governed by precedent and fortified with the knowledge gained from the study of thyroid pathology with its varying clinical picture, I propose to show that basophilic adenomas and basophilic hyperplasia of the pituitary produce a clinical picture varying in certain details from the syndrome as described by Cushing.[2]

The syndrome of basophilism is characterized by "(1) a rapidly acquired, peculiarly disposed and usually painful adiposity (in one instance representing a 40 per cent gain in weight), confined to the face, neck and trunk, the extremities being spared; (2) a tendency to become round shouldered (kyphotic) even to the point of measurable loss of height associated with lumbo-spinal pains; (3) a sexual dystrophy shown by early amenorrhea in the females and ultimate impotence in the males; (4) an alteration in normal hirsuties shown by a tendency to hypertrichosis of face and trunk in all the females as well as the pre-adolescent males and possibly the reverse in adult males; (5) a dusky or plethoric appearance of the skin with purplish lineæ atrophicæ; (6) vascular hypertension; (7) a tendency to erythremia; (8) variable backaches, abdominal pains, fatigability and ultimate extreme weakness."

Less constantly present are "(1) acrocyanosis; (2) purpura-like ecchymoses, whether from bruising or occurring spontaneously; (3) aching pains in the eyes, associated with slight exophthalmos, with transient diplopia, with suggestive papilledema, with dimness of vision, with subretinal exudate and retinal hemorrhage; (4) extreme dryness of the skin, with pigmentation; (5) polyphagia, polydipsia and polyuria; (6) albuminuria of slight degree with occasional casts; . . . (9) a sense of

suffocation and difficulty in swallowing; (10) insomnia; (11) polymorphonuclear leukocytosis."[2]

It is only reasonable to suppose that our present knowledge of pituitary physiology permits us to diagnose with reasonable accuracy variations in the clinical symptomatology of basophilism due to the same pituitary pathological picture. From Cushing's description of the syndrome and his discussions, it is evident that he anticipates some variation in the clinical picture.

Rutishauser[10] described three cases of pituitary basophilism which showed some degree of clinical variation from that described by Cushing. He has termed his cases osteoporotic obesity, thus emphasizing two symptoms. He calls attention to the fact that hirsutism is not a part of the picture, despite the fact that the adrenals are enlarged. The blood pressure shows marked fluctuations within a short space of time. He also calls attention to the plethoric full moon face but none of his cases showed polycythemia.

He goes on to describe three cases which fit into the classification as given by him. One of the cases had been followed from the age of eleven to twenty-three years, when the patient died of cerebral edema and hemorrhage. This patient already showed a congenital predisposition, for at the age of eleven years she was 22 centimetres smaller than normal and about 6 kilograms overweight. The anatomical and pathological diagnosis was osteoporotic obesity, agenesis of the posterior pituitary lobe, marked hyperplasia of the pituitary basophil cells under the picture of numerous areas of nodular hyperplasia, generalized obesity, marked osteoporosis, hypoplasia of the ovaries and uterus, dwarfism with closed epiphyses, diffuse lipoidosis of the parathyroids, enlarged lipoid-containing adrenals (20.15 grams), hypoplasia of the aorta, fibrous nodules of the heart, fresh hemorrhages in the meninges, acute edema of the lung.

We learn from this case that a congenital predisposition exists for basophilism. This is evidenced by the obesity, eneuresis and dwarfism at an early age. This latter condition of dwarfism would be understood if we assumed that the pituitary overactivity early in life resulted in a too rapid ossification of the long bones so that dwarfism resulted and growth in height was impossible. As we look at the complete picture of osteoporosis, fibrous nodules in the heart, hypertension, small uterus and hypoplastic ovaries, lipoidosis of the parathyroids, we are impressed with the similarity to old age, so that at twenty-three years the patient, due to pituitary basophilism, had reached senility.

The osteoporosis found in basophilism is of interest. Rutishauser,[10] basing his conclusions on the lipoidosis of the parathyroids found in his three cases, believes that it is due to the pituitary and not to the parathyroids. Cushing,[3] on the other hand, believes that the osteoporosis is the result of parathyroid participation in the syndrome. Aub,[1] studying one of Cushing's cases, found a marked negative calcium balance despite normal blood calcium and phosphorus values. It must not be forgotten that postmortem morphology is not necessarily the criterion by which one can judge antemortem function. It might well be argued that the excessive pituitary activity stimulates the parathyroids to the exhaustion stage, followed by lipoid degeneration of these glands.

Of interest in this regard is the recent work of Hoffman and Anselmino,[5] who demonstrated in experiments on dogs and rats that the calcium content of these animals increases under the influence of anterior pituitary extracts. In parathyroprival rats, however, extracts of the anterior lobe did not produce an increase in the calcium content of the blood. They believe that the pituitary extracts activate the parathyroids, resulting in an increased parathyroid secretion. Furthermore, these workers describe the action of anterior pituitary extract on the histologic picture of the parathyroids of rats. They were able to produce characteristic morphologic changes in the parathyroids. These glands were two to three times the original size. They interpreted the histologic changes as signs of parathyroid activation. It would seem then that the osteoporosis of basophilism is due primarily to pituitary overactivity and secondarily affecting parathyroid function.

Kepler, Kennedy, Davis, Walters and Wilder[6] of the Mayo Clinic reported seven cases which have, in the main, all the symptoms of pituitary basophilism. Two of these showed at operation an adenoma of the

suprarenal cortex; removal of the adenoma was followed by complete regression of the previously abnormal characteristics. The pituitary in three of the four cases which died showed a basophil adenoma in one; the other two showed a normal pituitary.

Rutishauser says that he is able to confirm Cushing's work, but emphasizes the fact that the clinical picture is not produced solely by adenomas of the pituitary but also by hyperplastic conditions of the gland. The Mayo clinicians say that from the evidence at hand one might speculate that the dominant part was taken by the suprarenal gland, even in cases in which basophil tumors of the pituitary were present. Furthermore, they say the problem is extremely puzzling. They feel that the answer to the question of dominance of either pituitary or suprarenal must wait, it would seem, until the hormones of the pituitary and those of the suprerenal cortex have been isolated in satisfactory purity and in sufficient amounts so that spontaneous disease can be reproduced experimentally. Without being so bold as to step into such pitfalls as this situation offers, I would venture the opinion that either gland may initiate the syndrome and the other gland responds to the pathology, a so-called reciprocal action. Poos,[9] using various animals in a large series of experiments, concluded that the pituitary always reacts qualitatively in the same way when other glands of internal secretion are disturbed by experimental attack. The quantitative differences are dependent upon the severity of the endocrine changes produced and secondarily on the length of the experiment.

It would seem from our increasing knowledge of endocrine physiology that each gland is definitely specific in its function. When these specific functions are learned, then we will not have to depend upon the changes in cell morphology found postmortem, but will come to rely upon the clinical picture to help us interpret glandular activity, even if the pathologist says the glands appear normal.

Pardee[8] reported seven cases which he believed belong to the basophilism group. He attempts to subdivide the cases into certain groups. He says the syndromes of pituitary basophilism are numerous and at the present time can only be tentatively outlined. He also says that one may consider a possible involvement of both suprarenal and pituitary glands.

Cushing,[4] who discussed Pardee's paper, warns of attempts to divide this syndrome into a number of subvarieties, when, after all, little is known about the complete expression of the disease. The more that is learned about it, he says, the less inclination there will be to divide it into clinical subtypes. What is chiefly needed for the progress of knowledge is a greater number of pathologically verified cases and less clinical speculation regarding the etiology of suggestively similar and borderline states. All pituitary disorders are, of course, symptomatically polyglandular and the variable degree in which they secondarily derange the parathyroid, suprarenal, thyroid glands or pancreatic islets will serve to modify the resultant clinical pictures. Furthermore, he says "By a basophilic adenoma I mean what the term 'adenoma' implies and not merely, as some critics have assumed, the tiny accumulation of basophilic elements so often seen in the pars distalis."

From Rutishauser's verified cases, the syndrome, it would seem, could be caused solely by hyperplasia of the pituitary and, if this is true, then a better understanding of the whole picture can be gained. It may be that it can also be produced by what appears, with our present methods of examination, a normal pituitary gland.

Most cases of pituitary basophilism have been found in women of short stature and, as previously stated, this would seem to be evidence of a congenital predisposition. This would mean more specifically that the pituitary was overactive early in life resulting in premature ossification. In the cases I have seen the congenital character was evident from the hereditary standpoint in that the mother was of practically the same short stature as the patient. On the other hand, a young woman of twenty-seven years, having all the signs and symptoms of basophilism, was 67 inches in height. The inherited nature of this condition is shown by the fact that the mother was 69 inches in height, one brother 76 inches and another 74 inches. In addition the mother and two sisters had a marked growth of hair on lips, chin, cheeks, chest, arms and legs, just like the patient.

Naturally the more the laws of inheritance are studied, the better are we able to

understand the almost countless variations possible with the same glandular pathology. Thomas H. Morgan,[7] who has contributed so much to our knowledge of inheritance, has been able to produce in the Drosophila mutations in form at will. From these studies certain practical applications can be drawn in endocrine work and it is in particular reference to the lack of hirsutism and other variations of basophilism that I refer.

In discussing sexual selection and hormones he says: "The way in which the organs or characters are determined by the balance of the chromosomes is a matter at present of pure speculation. Goldschmidt suggests, as others have done, that the genes may act as enzymes—that is, they are themselves enzymes or produce specific enzymes. This gives a picture of the genes as hormones. He supposes, in fact, that these enzymes begin to function at different rates —the male enzymes beginning before the female in certain crosses and conversely in other crosses. This explanation may seem to be no more than a description of the results in terms of postulated enzymes, but would be justifiable, whether in terms of enzymes or not, on the basis of a consistent relation running through an extensive series of crosses, as well as by Goldschmidt's examination of pupal stages of the hybrids. Omitting the enzyme hypothesis as not established by direct observation, it might be said that in certain races of the gypsy moths the balance between all the genes affecting sex determination is more on the female side and in other races on the male side. In the hybrid these relations are supposed to affect the characters in the way he postulates. It is equally conceivable, however, that all the genes may be functioning all the time, the effect depending on the nature of the different organs or on the age at which the genes exert their influence.

"In contrast to these intersexes there are other unusual types that are called gynandromorphs in which one part of the body may be strictly male, another part strictly female. These are interesting as showing that in insects, at least, male and female characters may exist side by side without any effect on each other. Gynandromorphs are otherwise interesting, as well because they furnish striking and convincing evidence that the chromosomes are the bearers of hereditary characters."

What seems most interesting is the ability of Morgan and others to predict in the Drosophila where the crossing over of new genes takes place. This they are able to do with the aid of a chromosome map or chart of the location of the genes in the four chromosomes of the Drosophila. Naturally hirsute and non-hirsute types may be produced.

If such be the case in lower animals, then, applied to man, it becomes apparent that, due to inheritance, our ability to influence cell development and function postnatally by glandular extracts, however potent, is to a great extent limited. In lower animals success with potent glandular extracts has been amply shown and many radical and remarkable changes have been brought about by these extracts. But when used in man, the highest and most complicated biological product in existence, it must be admitted that there is not the striking success such as seen in lower animals. We may well ask, can we change the inherited protoplasmic cellular make-up by glandular extracts? Are the failures due to these inherited characteristics, granting we have potent extracts? Applied to pituitary basophilism of the two types here cited, hirsute and non-hirsute, is it reasonable to suppose that we can produce hirsutism in individuals who have a non-hirsute inheritance by pituitary extract when a supposedly very active pituitary basophil adenoma is unable to produce it in such individuals?

The inherited characteristics carried in the chromosomes is nowhere so interestly studied as in homologous twins. I had occasion to see female twins who gave an interesting menstrual history. One of them gave me the following brief history: "My twin sister and I were born February 18, 1897. We did not reach puberty until the day before our seventeenth birthday, when both of us started menstruating, as I remember, one of us in the morning before going to school and the other at noon. Our menstrual periods were short, with scanty flow, and with a great deal of irregularity. The following year, while away from home at school, neither one of us menstruated during the fall school period. Both of us, however, menstruated during the Christmas holidays and from then until marriage at the age of twenty-five we continued to be quite irregular. After marriage both of us

have flowed regularly but scantily ever since." It is also interesting that both had umbilical hernia and both had the same children's diseases. Since the pituitary is the motor of the ovary, it is most interesting that its function should be identical with the same ovarian response at identically the same time.

Likewise I had occasion at one time to see homologous female twins, age thirty-nine years, who entered the hospital at the same time for the same complaint, a swelling in the lower abdomen. Operation in these twins disclosed a teratoma of the ovary on the same side in each case. Naturally these cells with their tumor disposition were present in the germ plasm.

Other examples of constitutional chromosomal inheritance are shown in homologous twins who develop epilepsy at the same time, enter criminal careers at the same time, and develop insanity at the same time, all this despite different environments.

Thus we see that glandular activity or glandular histological cellular make-up must be inherited. Such examples of chromosomal inheritance with the inherited glandular and tissue response have a tendency to make a fatalist out of the endocrinologist, at least if he accepts this chromosomal dictum. It likewise curbs one's enthusiasm as to just how much we can change the cellular make-up by animal extracts. It would seem, at least in our present state of endocrine knowledge, that control of tissues postnatally, by organic animal extracts, is rather remote. This constitutional inheritance of tissue response and make-up would explain many of our therapeutic endocrine failures. Perhaps when we use extracts prepared from human material it may be a different story, but at any rate recognition of these limitations will hasten our physiological endocrine progress.

Summary

Pituitary basophilism may present a variation in the clinical picture from that described by Cushing. Hirsutism may be lacking entirely. The syndrome may be produced not alone by a basophil adenoma of the pituitary but also by hyperplastic conditions of this gland.

The osteoporosis found so frequently in this syndrome is probably due to the pituitary activation of the parathyroids.

Constitutional inheritance is seemingly responsible for the variation in the clinical picture rather than a difference in glandular pathology.

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REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

According to Ray Lyman Wilbur, Stanford University, Calif., all education is undergoing a searching scrutiny. Costs, objectives and methods are being questioned. The profession of medicine requires new recruits each year who are better trained than those of the past. The Council on Medical Education and Hospitals has recognized the necessity of a restudy of medical education and decided on a reinspection and reclassification of the medical schools of the country. It is the policy of the Council to employ two inspectors in each visit in order to eliminate as far as possible the personal equation and to secure well balanced and dependable reports. From the studies thus far conducted it is apparent that some schools are accepting more students than the circumstances justify. In some instances physical or clinical facilities are inadequate, and in some instances many students are admitted whose academic records are poor. The situation in psychiatry, public health and obstetrics is definitely inadequate in many schools. So far, the inspections have shown a remarkable strength in the basic sciences and main clinical departments of most schools. The Council has been studying the relationships of the specialties to special examining boards. Some of the difficulties now being encountered are: 1. Most of these special boards have adopted the statement that the applicant must be "a graduate of a medical school which is satisfactory to the board." 2. Some of these boards require the candidate to have limited his practice and to indicate that he intends to continue to limit his practice to the special field involved. 3. This limitation is particularly difficult with respect to obstetrics and gynecology. 4. The procedure of refusing a certificate or examination should be modified.—(*Journal A. M. A.*, March 30, 1935.)

HEREDITY AND ENVIRONMENT IN RELATION TO THE HANDICAPPED*

Lecture II. The Amelioration of the Conditions of the Handicapped and the Possibilities of Reduction of Their Numbers by Modifications of Heredity and of Environment

LEWELLYS F. BARKER, M.D.
BALTIMORE, MARYLAND

1. Amelioration of the Conditions of the Handicapped

In my first lecture I dealt with the origin of handicaps. Tonight, we shall consider (1) the ways in which those who are handicapped may be helped, and (2) the methods of reducing the number of those who will be handicapped.

The medical profession and society as a whole have a right to feel greatly pleased at the progress that has been made, especially during the past few decades, in the discovery and application of measures that have contributed significantly to the welfare of the handicapped. New methods of prolonging their lives, of decreasing their physical and mental disabilities, of compensating for their social and economic insufficiencies, and of increasing their morale are continually being devised and ever better arrangements are being made to apply them.

In the first place, handicapped persons are better studied now than ever before. Attention is paid by physicians not only to the main handicapping condition presented but also to every organ and organ-system of the body with the idea of making an inventory of all things pathological and all things normal in the person under examination in order that his total situation may be more or less precisely determined. Only after such a careful multidimensional study has been made is it practicable to form adequate plans with regard to the best methods of dealing with the particular case.

In the second place, the effort is now made to give each person, after study, every advantage that can be derived from the various forms of therapy at our disposal—physical and mechanical therapy, surgical therapy, pharmacotherapy, therapy in which biological products are employed, psychotherapy, and institutional therapy when required.

In the making of the arrangements for study and treatment, the social-economic situation of the handicapped person, has to be kept in mind in order that the best possible solution of his problems in his circumstances shall be arrived at. We should strive to apply to each person after study of his somatic and psychic make-up every measure that may serve to strengthen weak points in the bodily fabric or in the psychic make-up.

It is often astonishing how much benefit handicapped persons can receive when they are studied and treated in this thorough and individualistic way. Though the genotypic factors of a person cannot be changed, the environment has much to do with the actual concrete traits that emerge. When organs that are defective are adequately protected from over-exertion and when measures are taken to prevent further handicapping and to keep the general health otherwise at the highest level possible, lives of great usefulness can often be led. Think, for example, of persons with valvular diseases of the heart or with certain forms of myocardial disease who were formerly condemned to lives of desuetude; how many of them through finding suitable occupations remain productive members of society for years and often for decades. Think, too, of the tuberculous patients who formerly were regarded as hopeless prospects but who, nowadays, are saved and returned to social and economic life. Some of the chronic anemias that formerly resisted treatment have become amenable through the removal of focal infections or through the administration of hydrochloric acid, together with stomach-treated liver extract. The victims of

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prolonged chronic indigestion often cease to be handicapped after surgical intervention for gastric or duodenal ulcer, for chronic appendicitis, or for gall stones. Many young people crippled by arthritis, have, in time, become agile again after removal of infected tonsils, adenoids, or teeth. Even when diseases of the spinal or other joints have left residuals that cannot be gotten rid of entirely, the handicapping they tend to produce is, today, often overcome in large part by the ministrations of the skillful orthopedist and by the experts in physical and psychotherapy. Our orthopedists have learned, too, how to be helpful at small cost to the victims of congenital club foot and congenital anomalies of the hip joint, especially since they have learned to intervene very early, even in the suckling period. Paralyses due to poliomyelitis are more or less permanent and are definitely handicapping, but with balneotherapy, with thermotherapy and with suitable supportive apparatus the handicaps may be overcome so largely that practically normal lives may be led; one may suffer from poliomyelitic crippling and still, later on, even become President of the United States! It is highly desirable that, in addition to attention to physical handicaps, care should be taken to prevent the development of "crippled personalities." The emotional problems, the personality difficulties, and any maladjustments should be given due consideration. I understand that at the Sigma Gamma clinic and hospital school, in this city, all such problems are duly appreciated. The residuals of epidemic encephalitis may be much more serious than those of poliomyelitis and the after-effects in the form of mental and physical impairment may be far less amenable to therapeutic intervention; still, even a post-encephalitic Parkinsonism can often be greatly ameliorated by the systematic use of hyoscin, atropin or scopolamin. Some forms of epileptiform seizures are amenable to medical treatment and some to surgical intervention. Certain types of insanity and of feeble-mindedness are, to some extent, amenable to therapy in suitable institutions but, unfortunately, all too many of them involve handicaps that are insuperable and compel permanent segregation from home and from society at large. Many children have personalities that are more or less psychopathic and the greatest tact is required in dealing with their difficulties—lack of self-confidence, egoism, sex abnormalities, pathological fantasies, day-dreams, explosiveness or cowardice. When parents have only one child, the family physician should warn against the special dangers that exist. Young persons handicapped by inborn criminal tendencies, too, offer problems that as yet are far from being solved.

Luckily, the handicaps due to diseases and anomalies of the organs of special sense have been more amenable to attack. Our specialists on diseases of the eyes, ears, nose and throat and paranasal sinuses have great triumphs to record in their domains as every practitioner is well aware.

Profound disturbances of nutrition (extreme emaciation or extreme obesity) may greatly handicap certain young people unless the causes are discovered and removed —fortunately possible in no small proportion of the cases. The youthful diabetic was formerly doomed to retirement from active life and to an early death; today, with suitable diet and with the systematic use of insulin, he can often be kept very well and capable of participating in active business or professional life. Our knowledge of the glands of internal secretion and their functions has made such great advances that many of those who are handicapped by endocrinopathies can be greatly relieved by therapy. I need only remind you of the restorations that follow thyroidectomy in Graves' disease, or the administration of thyroid extract in cretinism and in myxœdema, or the removal of one or more adenomatous parathyroid glands in osteitis fibrosa, or the administration of Collip's parathyroid hormone in tetany, or the administration of pituitrin in diabetes insipidus, to illustrate what I mean.

The task of ameliorating the conditions of young people who are handicapped by disease or anomaly enlists the sympathy and the active therapeutic intervention of every physician, surgeon, and specialist who comes in contact with them. It is interesting, too, that those physicians and surgeons who have had most to do with the study and the treatment of the handicapped, especially among the young, are among those who have evinced the most active interest in plans to reduce their numbers!

2. The Prevention of Handicaps

We must now ask ourselves the question: In how far is it possible to prevent the development of the handicaps that I discussed in my first lecture? It is the task of preventive medicine and of hygiene to do everything within human powers not only to prevent the occurrence of accidents, diseases, and anomalies but also to ensure longevity and an abounding vitality for the members of the race. And in our time, more than ever before, medical practitioners are expected to be not only healers of human ills but also preventers of them. Though they are still counted upon to diagnose diseases and to treat them, they are also expected to prevent invalidism and to guide those whom they serve toward the best possible goals of life (physical, mental and moral). Thus the physician of today is compelled to combine with the functions of his predecessors some of the duties that were formerly considered the provinces of priest, of philosopher, or of personal friend. It is but little wonder, therefore, that in preparation for medical careers in our time, training in the medical sciences and arts in the narrower sense has had to be supplemented by some training in psychology and sociology as well as by the acquisition of a certain amount of knowledge in the domains of philosophy and of ethics. Without such widening of their education, physicians would find it difficult to act as reliable guides to human health in the larger sense, by which I mean "the capacity to make adequate responses to influences in the surroundings." For, as I have said in an earlier paper, "life is response of organism to environment; health of constitution is capacity for adequate response of organism to environment; and health of person would seem to be adequacy of responsivity because of possession of health of constitution, on the one hand, and of exposure to environments that are not too inimical, on the other." Incapacity adequately to respond to the situations of life, no matter what the cause of that incapacity, is a definite handicap, to be prevented as far as is humanly possible.

Measures intended to prevent handicaps will obviously, therefore, fall into two great groups: (a) those that attempt to ensure favorable environments (euthenical measures), and (b) those that attempt to ensure favorable inheritance (eugenical measures). To a brief discussion of the methods of euthenics, on the one hand, and of the methods of eugenics on the other, the lecture of tonight will be chiefly devoted.

(A) APPLICATION OF THE PRINCIPLES OF EUTHENICS TO THE PREVENTION OF HANDICAPS. — Theoretically, euthenical measures include efforts at prevention of all harmful influences of environment, be they physical, chemical, biological, psychological, social, economic or political. Among these harmful influences, traumata, intoxications, and infections stand out as predominantly important from the practical standpoint of the general medical practitioner. Though much has been done to diminish the handicapping *traumata* of early life, far too many still occur and some forms of traumata, notably those due to automobile and aeroplane accidents, are greatly on the increase. *Intoxications,* due to improperly preserved or prepared foodstuffs, have been much decreased by legal control and by education of the public with regard to precautionary measures. Protection from many poisonous chemical substances is provided for by law, and vigorous campaigns to prevent the abuse of alcohol and tobacco, especially by the young, are ever being conducted. Many *infectious processes* formerly very prevalent are now largely prevented by public health services, by quarantine, by hygienic instruction, and by immunizing processes of various sorts. Think, for example, of the relative frequency of epidemics of typhoid fever and of diphtheria thirty years ago as compared with today. The prevention of tuberculosis has made rapid strides in the United States; measures of prevention together with early diagnosis of tuberculous infection and prompt adequate treatment has made the death rate from tuberculosis approach a figure of 50 per 100,000, the dividing line between the major and minor causes of death. The tuberculosis death rate between the ages of ten and thirty-nine was about 40 per cent lower in 1933 than in 1930—a most gratifying change for the better. Small pox, thanks to vaccination, is now almost a matter of ancient history and many other infectious diseases are likely to be stamped out by similar methods. Since 1910, when Flexner and Lewis showed that the serum of patients convales-

cent from poliomyelitis contains protective substances, many infections with poliomyelitic virus are being aborted (during epidemics) in the preparalytic stage by intraspinous and intravenous injections of serum; a prophylactic serum from the horse for intramuscular injection is also now available. Yellow fever and malaria disappear with adequate mosquito control. Unfortunately, our knowledge regarding prevention cannot always as yet be applied; for example, during the past two months a terrible epidemic of malaria has ravaged the island of Ceylon, more than a quarter of a million persons contracting the disease, and about 3,000 dying of it, one-third of the deaths being among children. The *food deficiency diseases* (including the avitaminoses) bid fair to become greatly diminshed with the ever-increasing enlightenment of the public with regard to their origin. *General hygiene,* too, has made rapid development in these United States during recent decades. But we dare not be too easily satisfied. Reform measures must continue to be advocated and achieved. Think, for example, of housing conditions; they are becoming ever better, but the newspapers of January 5, 1935, report the discovery, in southwest Missouri, by Federal property enumerators of a group of thirty-one persons all living together in a one-room hut with a heating plant improvised from an inverted wash tub!

Many handicaps of the young are being prevented by better *protection of expectant mothers* from harmful environmental influences. Attempts are now made to see to it that pregnant women are not allowed to overwork, to be improperly fed, to contract infections, or to be poisoned by alcohol or other harmful substances. General practitioners, obstetricians and various social agencies coöperate in the education of these expectant mothers and their families in the hygiene of pregnancy and do their best to aid in warding off anything that could be deleterious to the children that are soon to be born.

In the *hygiene of infancy and childhood,* also, great strides have been made in our time. Higher standards of bodily health after birth are maintained; the training in good habits is begun in the early weeks of life; the home atmosphere tends to be ever more one of self control, order, and goodwill, with abolition of examples of laziness, intemperance, irritability, cowardice and insincerity; the child is gradually "hardened" physically by means of fresh air, baths, and exercises and psychically by encouragement in the bearing of unavoidable discomforts patiently and in the facing of dangers without cowardice.

When the school period is reached previously unsuspected handicapping tendencies are often discovered. Inability to keep pace with the regular work of the school (mental backwardness) should lead to careful clinical studies to determine whether this be due to actual brain defect (with true mental deficiency) or merely to some physical abnormality of the eyes, ears, tonsils, digestive tract or endocrine system that can be overcome. At the school age, too, so-called "problem children" with character defects emerge whence only too often the delinquent and criminal classes are later on recruited; if these character defects are detected early, something can be done toward the prevention of malign developments later. Again, children who for economic or other reasons are prevented from obtaining a good education are definitely handicapped in comparison with children who can be well educated. Every effort should be made, therefore, to see to it that each American child receives the kind and the degree of education best suited to it. I would point out, however, that attempts to educate children and young people beyond their capacities and especially the spending of money and time for a college education upon those unfitted to profit by it are serious errors; I am convinced that in the United States a considerable percentage of those who try to obtain a college degree and fail are more handicapped than they would have been had they received wise vocational counsel, entered early upon some productive occupation, and not attempted college.

For those who go to college as well as for those who do not, it is highly important that life occupations should be selected that are suited to the physical, mental and moral qualities of those that are to engage in them. No vocation that makes demands that cannot be met should be chosen; but the occupation decided upon should be such that it will make provision for exercising to the full the capacities that are actually available. Those who attempt to guide

young people in the choice of their vocations should, therefore, survey most carefully the personal assets and liabilities of those to whom they give advice.

Parents should see to it that their sons and daughters, during adolescence, receive all the protection, on the one hand, and all the stimulation, on the other, that our newer studies of hygiene have shown to be wise. Regularity of habits should be strictly enjoined, especially as regards work, exercise, sleep and recreation, for habits that become well established at this time of life are likely to be maintained through later life. Family physicians can often be of help to parents whose children in their 'teens find difficulty in solving inner conflicts among their instinctive tendencies; such aid may be of especial importance in preventing the development of nervous breakdowns or psychoses in young persons that have exhibited tendencies to shyness, seclusion, day dreaming or suspiciousness.

State governments are taking more interest than formerly in the preservation of the health of children and are organizing special departments with this purpose in view. In Indiana, for example, the Department of Child Health and Maternal Welfare has been assigned the Indiana University School of Medicine for management with participation of the State and County medical and dental associations in the work; educational campaigns bearing upon the health of the pre-school child and of the school child are conducted with vigor and with promise of success.

More and more heads of families are becoming interested in having their sons and daughters report to the family physician regularly one or twice a year for physical examination and for advice regarding both bodily and mental hygiene, the family physician calling specialists or even diagnostic groups to his aid when their services seem indicated. This practice is to be heartily endorsed; if it were more generally followed many disorders would be entirely prevented or would be detected in their incipiency when therapy can be most efficacious. Time will not permit me to dwell longer upon the applications of euthenical methods to the prevention of handicapping processes, but I have said enough, perhaps, to indicate in a general way of how great value they may be. We must now pass on to some consideration of the applications of eugenical methods with the same purpose in view.

(b) APPLICATIONS OF THE PRINCIPLES OF EUGENICS TO THE LESSENING OF THE NUMBERS OF HANDICAPPED PERSONS.—No less than sixty-five years ago, Galton, who later did so much to interest the world in the subject of eugenics, gave expression to the conviction that the human race was gradually deteriorating, and in 1883, he complained that the mentally superior families did not propagate as extensively as formerly. He then suggested that if deterioration of the race is to be prevented, a change in the relative fertility of the better constituted and the more poorly constituted classes of society must in some way be brought about. Though the human race may have reached its existing status through *mutation, natural selection* and the *survival of the more fit,* Galton evidently had become doubtful as to the further progress of human evolution without conscious intervention by man himself. Similar views are promulgated by many of the eugenists of today; thus at a recent meeting of the American Anthropological Association Professor E. A. Hooton of Harvard demanded "a biological new deal" and urged the replacement of natural selection by intelligent *artificial selection,* intimating that, in his opinion, man has long since ceased to show any evolutionary improvement.

Members of primitive populations attained, as a rule, parenthood only when they were very resistant, resembling in this respect animals and trees. Members of modern cultured peoples are less subject to early death and to other conditions of biological selection. Married people vary in the number of children they produce, a fact that tends to result in the *selective elimination* of the less fruitful; thus families that do not produce more than two children run the risk of relatively speedy extinction. When families of less valuable hereditary make-up have a greater number of offspring than families of more valuable hereditary make-up, there is a tendency in the biological sense to so-called *"contra-selection."* Many observers see, today, great danger of "racial degeneration" because they believe that the principal representatives of modern culture and persons whose germ-plasms contain

the best genotypic factors leave the fewest descendants.

But, even though all this may be true, it cannot be denied that natural selection is still going on in our modern environments. The more severely handicapped are apt to remain unmarried, or if they live to marry may produce a smaller number of offspring for economic or other reasons. Thus early diabetes and excessive obesity make certain persons sterile; the victims of congenital heart disease are prone to die earlier than others; severe mental diseases or mental deficiencies may lead to suicide or to confinement in asylums for the insane or homes for the feeble-minded and thus lessen procreation; those who do not succumb to infections are prone to be persons of greater natural resistance than those that die; tuberculosis weeds the population of many feebler constitutions, especially the profoundly asthenic and hypoplastic; survivors of venereal infections may produce fewer children or less resistant children than persons who do not contract such infections because of premarital sexual abstinence or through the use of protective measures during premarital coitus, and it is asserted that many of the childless marriages in civilized countries are due to sterility because of parental gonorrhea and many abortions and premature births are the result of parental syphilis; the relatively high mortality among sucklings is believed by many to be beneficially selective for the race through the elimination of the constitutionally inferior; and the victims of severe alcoholism and of drug habits (morphinism; cocainism; heroinism) though they often have children, frequently give rise to offspring of low biological resistance.

In earlier times, *war* tended to improve racial factors since the victors tended to be the bodily and psychically superior, but in modern wars the physically and mentally unfit are rejected from military service so that their lives are preserved whereas the strongest and bravest are sent into the most dangerous war areas and are killed in great numbers. Eugenists like Popenoe and Johnson claim that the race-welfare of Europe suffered more in the last World War in which approximately ten million died than in any other similar period in the world's history. In certain *modern revolutions*, great numbers of the families of the cultured and the well-to-do were exterminated, thus exerting a very unfavorable selective influence upon the general population. It must be remembered, however, that the more talented and the more intellectual families were gradually dying out before the War and before these revolutions and Lenz has gone so far as to say that the ill effects of war upon racial constitutions have not, upon the whole, been so very much worse than the contra-selective effects of modern Occidental civilization!

Since persons of different bodily and mental makeup are not evenly distributed through different social groups, the possible connections between this *social selection* and biological selection have been much discussed. Those who enter different occupations differ much in their types of constitution and in their social status; in the choice of an occupation by any given person, much depends upon the physical qualities and the intellectual assets at disposal, upon the education that has been possible, upon the economic situation, and upon the relationships of the family in the community. In general, even in a country like our United States with its much vaunted "freedom and equality," an ambition to rise in the so-called "social scale" is everywhere evident. Here we have no hereditary titled nobility that ensures high social standing; on the contrary, the way is wide open for the talented to rise to the social levels that they merit. Heredity undoubtedly plays a large part in the origin of the ability to learn and to profit by higher education. Though talented parents may have mediocre or even feeble-minded children, taken by and large the children of superior parents average higher in mental ability than do those of the untalented. The statistics of the descendants of Johnathan Edwards cited by Popenoe and Johnson offer a notable example of the inheritance of talent; among about 1400 of these descendants there were astonishingly large numbers of university professors, university presidents, physicians, lawyers, and important politicians and statesmen, and not a single criminal developed. On the other hand, intellectual inferiority may be just as strikingly familial as has been illustrated by the analyses by Dugdale, and later by Estabrook, of the 2,280 descendants of Ada Juke the majority of whom were inferior in one way or another—imbeciles, prosti-

tutes, criminals and unemployables—costing the state, it has been estimated, no less than two and a half million dollars for their support. Another dreadful example is the Kallikak family, described by Goddard; in this family, in which 40 pairs of feeble-minded persons married and produced 220 imbecile children and only two apparently normal children, there were also marriages of imbeciles with normal persons with 50 per cent of their children imbecile. Further evidence of a similar sort has been accumulated by Davenport and his associates in connection with the "Nam family" as well as with the so-called "hill-folk"; and European psychiatrists have described other badly fated families.

All must agree with F. Lenz when he asserts that the majority of men strive for a better or a higher life and for improved economic or social position for themselves and their families rather than for the production and maintenance of a large number of offspring. Now since biological selection is ultimately measurable exclusively by the number of descendants that in turn propagate, the man who leaves no children or who produces only one or two children is an example of *negative biological selection,* no matter how brilliant his social or economic career may have been. In the western countries of the world, members of the "upper classes" tend on the average to have fewer children than members of the "lower classes"; in other words, social advancement under modern cultural conditions leads gradually to the extinction of the families that are advanced. More members remain single; those who marry are prone to do so at a later age than formerly; and, since smallness of the family may contribute to further social and economic advancement, the tendency often is to restrict sharply the number of offspring. Thus the social selection of modern life may be one cause of biological contra-selection. As Dr. Raymond Pearl has well put it "the wrong kind of people have too many children and the right kind too few."

In order to keep families of good quality going, it has been estimated that there should be a minimum of three or four children per marriage; two will not suffice. The average number of children per family among intellectuals tends to be less than two; Cattell studying the number of children per 1,000 marriages of intellectuals in the United States found the average to be 1:5 per family. In England S. Webb (1910) found the same average of 1.5 children per family of intellectuals whereas for manual workers the average number of children per family was approximately five. From such statistics the threat to the genotypic factors that make for intellectual superiority would seem to be obvious; and many have expressed the fear that there may be a rather rapid retrogression of the general endowment of the population in the more intellectual countries.

The smallness of the families of intellectuals seems to be brought about by intentional prevention of births, chiefly through the use of contraceptive methods during coitus, to a less degree through abstinence from sexual intercourse, and only slightly through induced abortions. The reasons alleged for such birth control have been partly economic and partly social; in addition, among university professors and investigators in scientific institutes the fear of hindrance to work has been adduced as a reason. Though *birth-control* could be made use of in families of pathological heredity as a means of racial betterment, its effects as at present employed would seem rather to be contra-selective through the gradual extermination of the more talented families. This is especially true in university circles; it seems paradoxical, and Galton deplored it, that universities supposed to be the nurseries of higher intellectual life should in reality prove to be places in which the hereditary factors that make for mental power are allowed to die out!

The modern opportunities for women in intellectual pursuits (teaching and other professions; private secretarial work, etc.) have also tended to have a contra-selective effect from the racial standpoint. Many of the intelligent women who seize these opportunities either do not marry at all, or if they marry, rigidly restrict the numbers of their offspring. Moreover, only about one-half of the graduates of our best colleges for women marry at all and those that do marry produce on the average less than one child per marriage!

In how far the *migration* of people from farms to the towns or from one land to another affects racial conditions is worthy of some consideration. Galton feared that the

removal of the more energetic and enterprising from country to town led gradually to their disappearance because of the learning of the methods of birth control or because of the acquisition in the town of venereal diseases that made many of them sterile. Migration from one country to another may affect greatly the constitutional makeup of national populations. Between 1820 and 1900 some twenty million immigrants entered the United States. Many of these were energetic, enterprising, adventuresome, brave persons, though among them were also many undesirable elements, some of the worst of these succumbing, however, soon after entrance to the new land. The majority of immigrants to the United States during the nineteenth century came from the northwest half of Europe and were of Nordic race. Since 1900, the immigrants have come chiefly from the southern and eastern parts of Europe. Recently, as you know, all immigration has been greatly restricted; but quantitative restriction is not enough and, as C. P. Armstrong has recently urged, the law should provide for a better qualitative selection of aliens. Though the definitely feeble-minded are excluded by law, many who are intellectually retarded are admitted. The inferior children of socially and eugenically unfit immigrants are creating a serious problem for the United States since they increase the number of mentally retarded deviates. In New York City the majority of the 12,000 children arraigned annually in the Children's Court, of the 1,000 chronic truants in the disciplinary schools, of the 18,000 wards of the Department of Public Welfare, of the 10,000 backward children in the ungraded classes of the public schools and of the 600 mental defectives at Randall's Island were found to be the offspring of foreign-born parents!

For mankind as a whole, the matter of the *relative numbers of the white, the black, the red and the yellow races* is, of course, of very great importance. When we think of what happened to the civilization of Greece and Rome in the course of a few centuries, we hesitate to make prophecies regarding the future of the various civilizations now extant or of their racial basis. Many fear that the large blond Nordic race is in danger of dying out; Madison Grant (1916) described it as "the passing of the great race" and thoughtful men in our country, in England, in Germany and in Scandinavian countries have urged the development of a community of interest among all members of the Nordic race as a matter of ethics. Gobineau inclined to the belief that a people would never die out so long as it continued to be composed of the same racial elements. C. G. Campbell of New York also has recently given expression to the view that race mixture causes racial deterioration. Possibly some such idea has been at the basis of the recent expulsion of great numbers of Jews from Germany! America is a vast mixture of racial groups in close juxtaposition. The numbers of the remaining Indians and of the yellow races in the United States are scarcely sufficient to constitute any serious problem. The greatest difficulties ahead with regard to racial groups probably lie in the relationships of whites and blacks in this country, and in the results of the admission during recent years of great numbers of inferior immigrants.

Every national population should certainly be on guard against influences that cause deterioration—so-called "cacogenic influences." I have shown the dangers of inhibiting selective elimination of the unfit and also the threat to capacities for culture that lie in contra-selective influences, especially in the relative infertility of the more desirable elments of populations. Provision should be made whenever possible for earlier marriages of the "fit," of the constitutionally superior, and for a larger proportion of children from such marriages. And the environment of all offspring should be made as good as possible since as Aristotle said, "The nature of man is not what he is born as, but what he is born for," or as Jennings has paraphrased it, "The inheritance of man is not alone what he is born with, but what he can develop." For every man has a great (though limited) number of varieties of possibilities of development in his genotype; which of these will be actually realized as his life goes on will depend upon the successive conditions to which his genotypic factors are exposed. A person who may because of his genotype develop a defect under certain conditions need not necessarily do so under other conditions. Heredity is powerful but environment is powerful also; each person becomes what he does because of the interaction of factors of both—in other words all character-

istics are dependent upon both heredity and upon environment and in modern genetic studies the effort is made to determine, by analysis of given cases and by statistical studies, in how far a certain characteristic is predominantly due to the genotype, on the one hand, or to the surrounding influences, on the other.

The genes of a spermatozoön, or of an ovum, can be injured before fertilization occurs. Severe injuries would doubtless prevent fertilization but milder injuries may change germ plasm slightly to the detriment of the genotypic factors it contains. Eugenists, therefore, are ardent supporters of the more sensible *movements that may help to protect germ plasms from injury* due to intoxications from alcohol, lead, or mercury or due to physical influences like over-exposure to x-rays or to radium. During the "prohibition era" in the United States, much alcohol was still consumed. Young people who before prohibition did not drink at all or limited their drinking to beer or light wines resorted to concentrated alcoholic drinks (bootleg whiskey or gin) and unfortunately many girls as well as boys acquired the habit of drinking many cocktails. Now that the use of alcohol is permitted again it is highly important that young people who drink at all should confine their libations to beer, light wine and much diluted alcoholic drinks. It may be found difficult to change the drinking habits of the present generation but strong efforts should be made to do so.

Eugenists also participate actively in campaigns for the *prevention of infections* with the *Treponema pallidum* or with the *Gonococcus* as well as in efforts for the prompt and thorough treatment of such infections. The poisons of syphilis may be very injurious to the hereditary factors in the germ plasm as everyone knows; moreover, all too often when the mother is infected, the causative micro-organism may be directly passed on as such to the embryo developing in her womb. In gonorrheal infections, the danger of injuries to germ cells is less, but sterility often results; but whether more constitutionally inferiors or more constitutionally superiors are thus rendered sterile by gonorrhea is uncertain. It was for a time feared that the law making it compulsory for physicians to report syphilis when found to the health authorities might keep patients from consulting regular practitioners and drive them to quacks for treatment, but there is but little evidence that this has been true. The hygienic education of youth as to the dangers of venereal infections has done much, and will do more, to prevent illicit sexual intercourse and the contraction of venereal infections. And, though there is still much illicit indulgence, the use of protective coverings by those who indulge has done something toward preventing these dangerous infections. Many young men who have been exposed to syphilis now have *pre-marital medical examinations* including Wassermann tests and this practice is, of course, laudable. Even those who have not knowingly been exposed to infection with syphilis do well to be examined before marriage since it has been asserted that at least ten per cent of syphilitic infections are acquired otherwise than through sexual intercourse.

In some of our states there are not only laws that prohibit marriage of a person who has active venereal disease, but also of persons who are actually insane, who are feeble-minded, who are chronically alcoholic, or who suffer from epileptic seizures. The laws, however, rarely require that a medical certificate shall be obtained, the declaration of the marital candidate being held sufficient. In Norway, before marriage, a certificate of health from a registered physician is compulsory. I do not feel sure that the time is yet ripe in the United States for general laws that prohibit marriage for eugenic reasons. There would, probably, be less objection to laws that would make premarital consultation with a physician as to health and the advisability of marriage compulsory. In some countries it has been urged that certain medical men be appointed and paid by the government to be medical advisers regarding the fitness of those contemplating marriage and without cost to the applicants. In our country, I am inclined to think that, for the present at least, we shall accomplish most by means of systematic education of youth in the principles of eugenics and by trying to develop the practice of voluntary medical consultation before marriage into a common procedure rather than by premature passage of restrictive laws. The words of former President Hoover should be widely disseminated: "There should be no child in America that has not

the complete birth right of a sound mind in a sound body and that has not been born under proper conditions." Though impossible of complete realization it is a worthy ideal to work toward.

Since the opening of the new century the question of the desirability of *sterilizing the notoriously unfit* so as to prevent them from propagating has been much discussed. In an institute for defective delinquents in Indiana, Sharp in the first decade of the century sterilized nearly two hundred inmates who consented of their own free will when it was explained that the little operation did not interfere with sexual intercourse. Following upon the favorable results that he obtained, the State of Indiana passed a law for the selective sterilization of defectives and in a recent paper T. R. Robie reports that laws permitting selective sterilization are available in 27 states (more than half of the states of the Union) at the present time. In 1930, more than 90 per cent. of the members of the American Association for the Study of the Feeble-minded approved the principle of selective sterilization. In California and in Delaware where many such sterilizations have been performed, those who have informed themselves of the effects are enthusiastic supporters of the measure and believe that the sterilization law is one of the most important laws on their statute books. When we read of a "family in which 16 children were born, all of whom were of moron intelligence or lower, the father being an illiterate mental defective and the mother mentally retarded as well as epileptic," or when we recall the Kallikak family and the Jukes family to which I have already referred, we must have much sympathy with the efforts that are being made to lessen by means of legal selective sterilization the multiplication of such inferior types. In a study of school children in Germany, von Brunn (1934) found that those feeble-minded because of heredity made up 80 to 90 per cent of the feeble-minded children and he recommended that they be rendered sterile. Sterilization in the male by means of vasectomy is a minor operation requiring only a few minutes and devoid of danger. Surgical sterilization of the female is a more complicated procedure (salpingectomy) but non-surgical sterilization can be easily and safely performed by roentgenization of the ovaries. Though we may not yet be ready for such a radical program of selective sterilization as H. H. Laughlin has suggested (100,000 sterilizations per year at first and larger numbers later on until all outspoken defectives in the United States are either made sterile or prevented from propagating by confinement in institutions), it is easy to see that much good could be accomplished by the judicious application of sterilizing methods, especially in definitely defective cases with undoubted hereditary transmissibility (either dominant or recessive). For bad criminal types, *permanent segregation* in prisons, as already arranged for in some of our states, will suffice without sterilization, but the future probably has a place for sterilization of criminals, vagabonds and habitual drinkers that cannot be permanently segregated. Mild mental deficiency may be a greater threat to the health of succeeding generations than marked imbecility or actual idiocy since the latter are very unlikely to propagate. When for any reason conception should be prevented and sterilization is not feasible, the physician should give instruction with regard to contraceptive methods. If wise laws regarding sterilization and segregation were passed and strictly enforced, it has been estimated that in less than a century at least 90 per cent of crime, insanity, feeble-mindedness, moronism, and abnormal sexuality, as well as other forms of defectiveness and degeneracy could be eliminated (L. K. Sadler).

As Galton early pointed out and as Lenz has more recently urged, there is something even more important from the eugenic standpoint than the direct fight to reduce the fecundity of those who transmit inheritable diseases or defects and that is the *campaign for the greater multiplication of the more fit,* of those whose sex cells contain the genotypic factors that form the hereditary basis for the development of superior qualities, an aristogenic campaign in the sense of C. W. Crampton. How can the tendency to die out shown by families with the best kinds of inheritance be lessened? Certainly every practical means at our disposal should be made use of to combat this tendency. The Dutch eugenist, J. Sanders, recognizing the great importance for every population of the increase of the inborn special aptitudes that make for superior intelligence

and for excellence in scientific, artistic and technical domains and of environments that will give the hereditarily gifted the best opportunities to develop their talents has recently made a whole series of recommendations, some of them practical, some of them either premature, or, in this country at least, wholly impractical. Most will agree with him, however, that certain of the more important measures advocated could be put into immediate operation. Among these may be mentioned (1) propaganda on a large scale (literature, lectures, the stage, the movies, the radio) to make the essence and aim of eugenics better known; (2) arrangements for more teaching of eugenics and genetics in educational institutions; and (3) provision for funds for increase of scientific research on eugenics in local, national and international institutes. In how far the education of gifted children can be accelerated through action of the state to prevent hampering by financial or other difficulties, or in how far governments may be expected to reform systems of taxation in the interest of eugenic principles are questions that I, myself, find difficult to answer, though Sanders is of the opinion that both these measures also should be put to the test.

Something can probably be accomplished by direct appeals to single intelligent young persons of good racial stock. These young persons of deeper insight should be taught how to lead lives that are best calculated to favor racial as well as personal welfare. They must be urged to protect themselves from all influences that could be injurious to the germ cells that they carry. They should be advised to *marry early,* if possible, making sure too that eugenical considerations are not overlooked in the selection of their marital partners. And, after marriage, they should plan to have four or more children, realizing that the birth of two children or less will not suffice to secure the perpetuation of a desirable family strain (H. F. Osborn). I have been interested to note in the present generation of young people a general tendency of superior youth to marry earlier than in my generation. To cite a single example, I may mention a colony of young physicians and surgeons and their families settled in several little streets about the Johns Hopkins Hospital. Some of the men are internes or junior assistants who have found young women who were willing to marry them and to begin the rearing of families on means much smaller on the average, than we thought necessary for marriage thirty years ago. They seem to constitute a very happy group and I cannot help but feel that they have been wise in their decisions. If, as I am told is the case, earlier marriages are occurring more often among college men and women elsewhere also, the members of the present generation of young people may be contributing significantly to eugenic welfare. If the graduates of our colleges for women will also marry in larger numbers and will no longer be content, as they have been, to average less than one child per marriage, still more will be done gradually to increase the numbers of the gifted and to decrease the numbers of the feeble-minded, the crippled, the criminal and other handicapped types, which through the lethargy and general indifference of the public have come to be accepted as unavoidable evils. Let our young women of higher education as well as our college men respond to the slogan "not more but better Americans," for as H. F. Osborn urges, "quality rather than quantity is the essential element of progress in every country and in every race."

Society is in duty bound to protect itself by all sensible methods against the continuance of avoidable blunders of hereditary transmission. History teaches that one of the chief causes of the decline and fall of nations has been deterioration of the national stock. If we wish America to survive and to continue to prosper we must *breed good Americans;* there is every reason therefore for awakening the sense of individual moral responsibility and for quickening eugenic consciousness among our young people early in their lives, not later than the high school period. We must try in this country to promote, as eugenists are attempting to do in Norway, a development of morality that will lead citizens "to abstain voluntarily from the worst of all forms of liberty—the liberty to bestow life upon incompetent offspring." It is exceedingly important, therefore, that before marriages are entered upon there should be some mutual knowledge of family history on the part of those who are proposing to marry (C. B. Davenport). If all could learn that "the responsibility for giving life

to a human being may weigh just as heavy as responsibility for causing the death of a human being" (J. A. Mjoen), much benefit to the race would accrue. It is appalling that in the United States "families that send a child to an institution for feeble-mindedness average twice as many as those who send a child to the university" (J. H. Landman). If the estimates of the Human Betterment Foundation are anywhere near correct when they declare that the number of insane and mental defectives alone exceed 18,000,000 persons in the United States, it is high time that every serious minded citizen should give more attention to a situation that is so threatening to the future welfare of our people.

But perhaps I have been painting too optimistic a picture of what eugenical efforts could accomplish. While all can see how desirable it is that the superior elements of our population should undergo steady proportional increase rather than decrease, I am, in reality, not so confident as some of the more enthusiastic eugenists are that radical and speedy change can actually be brought about. We cannot breed human beings as we can vegetables and fruits. By special means, man can intervene in the development of varieties of the latter until a good combination of hereditary factors (genes) has been obtained, after which that combination can be preserved and caused to multiply without change; Oregon Spitzenburg apples, Concord grapes, casawba melons, and the choicest varieties of tomatoes and cabbages can be produced in enormous numbers at will of the grower. But in higher animals, including man, no combination of genes can be permanent; the combination is necessarily unique in each individual (with the exception of indentical twins). Though in the long run, a great series of superior human parents will, doubtless, produce offspring of higher average abilities than the offspring of an equally large series of inferior parents, it is also true that, because of the continual change in the combinations of genes, the descendants of superior parents will include some who are superior, some who are of medium ability and some who are inferior, and the same is true of the descendants of parents who belong in the inferior groups. Reproduction in man is biparental, not uniparental as it can be made to be in superior varieties of fruits and flowers. Even if it were possible to devise a method by means of which an adult human being of superior type could propagate offspring that would receive the same combination of genes with which he started, it is very doubtful whether the race as a whole would, in the long run, be benefited; Nature's method by which diversity of the human product is unavoidable may, in reality, be on the whole more desirable than uniformity and constancy of type. In this connection I may quote the words of the distinguished biologist, H. S. Jennings, who says that no matter what eugenic measures are attempted, "so long as biparental inheritance is kept up, the variety, the surprises, the perplexities, the melodrama, that now present themselves among the fruits of the human vine will continue. Capitalists will continue to produce artists, poets, socialists and labourers; labouring men will give birth to capitalists, to philosophers, to men of science; fools will produce wise men and wise men will produce fools; who mounts will fall, who falls will mount; and all the kinds of problems presented to society by the turns of the invisible wheel will remain. They may be softened by improvement of conditions, by increase of knowledge, and perhaps by selective eugenics; but they will not disappear so long as biparental reproduction continues."

I must now bring these lectures to a close. They will, I fear, be somewhat disappointing to over-enthusiastic eugenists, on the one hand, and to those who think environment can perform more miracles than are possible, on the other. But we must face the facts; it is certain that the limits set by heredity of man cannot be transcended; and it is equally certain that ameliorative environments cannot wholly overcome poverty of potentiality in germ plasm. Physicians in general practice are among the main guardians of the health and happiness of our citizens. They, better than most, are familiar with the dangers of environmental situations and with the significance of good and bad inheritance. They thus have special opportunities for leadership in matters that concern the hygiene of single persons, of families and of the race. As medical men we must, therefore, push steadily onward, doing our best to favor the multiplication of those of superior endowment and to diminish exposure to harmful

surroundings. By these activities our profession can always be of effective service in preventing some of the conditions that handicap and in ameliorating much of the suffering and disability of the unfortunate.

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INTESTINAL FISTULA*

HENRY K. RANSOM, M.D.,† and FREDERICK A. COLLER, M.D.‡
ANN ARBOR, MICHIGAN

Intestinal fistulæ are of two main types: (1) internal, and (2) external. In the former a communication exists between one portion of the intestinal tract and another or between the intestine and some other hollow viscus, as for example, the gallbladder or stomach. In the external fistulæ, the communication is with the surface of the body. These fistulæ may be either direct, in which case the intestinal mucous membrane grows outward to join the skin, or indirect, when a channel or tract lined by granulation tissue connects the opening in the intestine with the body surface. A variation of the latter is the case in which there is an intermediate abscess cavity through which the intestinal discharge must pass in escaping from the bowel. The abscess is thereby perpetuated and proper and satisfactory drainage of it becomes an important factor in the successful treatment of the fistula.

Intestinal fistulæ may develop as the result of severe infections of the intestinal tract with resulting perforation such as may occur in acute suppurative appendicitis with secondary necrosis of the intestinal wall, in typhoid ulcers of the small intestine, or in diverticulitis of the sigmoid; from involvement of the bowel by specific infections as tuberculosis or actinomycosis; occasionally from malignant disease; and not infrequently as a postoperative complication of intra-abdominal surgical procedures when leakage occurs at a suture line or when the bowel wall or its blood supply have been damaged. Occasionally a fistula is the sequel of an abdominal injury, especially when there has been a penetrating wound.

In the present paper, we wish to consider in detail the external intestinal fistulæ. As the basis for this study, the records of ninety-four cases observed or treated in the University Hospital during the nine-year period from July 1, 1925 to July 1, 1934, have been reviewed and analyzed. Cases in which an artificial anus had been intentionally produced by a surgical operation as well as the recto-vaginal and entero-vesical fistulæ were purposely excluded.

In the group studied, ten patients were only observed in the Out-Patient clinic and

TABLE I. EXTERNAL INTESTINAL FISTULÆ
(July 1, 1925–July 1, 1934)

Observed but not treated	10
Treated without operation	28
Treated by surgical operation	56
	94

necessarily in some of them complete data were not available. Twenty-eight of the patients were treated by non-operative methods while surgical intervention was required for closure in the remaining fifty-six cases (Table I). In twenty-eight of the ninety-four cases, the fistula developed as a postoperative complication in patients undergoing treatment in the hospital. In three of these cases, the fistula appeared a short time prior to death in patients who had extensive abdominal sepsis or who had had palliative operations performed for far advanced malignancy of the digestive tract. In them problems of treatment scarcely arose and the fistulæ played no important part in the fatal outcome. In the management of the remaining twenty-five hospital patients, seven died, six had spontaneous closure, while operative procedure was required in nine and in the remaining three closure was proceeding spontaneously in a satisfactory manner at the time of discharge from the hospital.

Anatomic Location

While an intestinal fistula may involve any portion of the intestinal tract, the great majority occur in the lower ileum or colon. In Table II are shown the locations of the fistulæ in the seventy-four cases in which this fact could be determined with certainty.

A complete fistula in the colon or the terminal ileum is not incompatible with life and health or even comfort since the fecal

*From the Department of Surgery, University of Michigan. Read before the Surgical Section of the meeting of the Michigan State Medical Society, Battle Creek, Michigan, September 13, 1934.

†Dr. Henry K. Ransom, Michigan, 1923, is Associate Professor of Surgery, University of Michigan.

‡Dr. Frederick A. Coller, Harvard, 1912, is Professor of Surgery and Director, Department of Surgery, University of Michigan.

TABLE II. ANATOMIC LOCATION

Duodenum		3
Jejunum		1
Ileum		34
Cecum		11
Ascending colon		3
Transverse Colon		3
Descending colon		3
Sigmoid		12
Multiple		4
Duodenum and hepatic flexure	1	
Ileum and cecum	2	
Ileum and sigmoid	1	
Site undetermined		30
		94

TABLE III. DUODENAL FISTULÆ

1. Cholecystectomy elsewhere, followed by multiple fistulæ (duodenum and hepatic flexure)—jejunostomy—Death.
2. Plastic reconstruction of common duct with duodenotomy—leakage at suture line—no operation—death.
3. Cholecystostomy for carcinoma of gall bladder with stones—duodenal fistula from neoplastic invasion of duodenal wall—no operation—death.
4. Polya resection for carcinoma of stomach—duodenal fistula evidently due to leakage at stump of duodenum—treated by constant suction—spontaneous closure in nineteen days.

stream at this level is semi-solid in character and the intestinal juices do not have an especially inimical effect upon the skin. There seems to be some individual variation in this regard where the terminal ileum is concerned in different patients, inasmuch as some experience little disturbance from an ileostomy whereas others suffer from varying degrees of skin irritation. It is probably true that in time the ileum tends to become dilated and thus it takes over some of the functions of the large bowel, the result being less frequent and less watery movements. The fistulæ situated high up in the small intestine seriously impair health and nutrition and may cause death from inanition and dehydration due to the rapid and extreme losses of intestinal contents or from infection and exhaustion on account of the severe digestion of the skin about the mouth of the fistula.

Duodenal Fistulæ

Duodenal fistulæ usually result from the perforation of an ulcer, from penetrating abdominal wounds or injuries to the duodenum at the time of operation, most commonly during those operations performed upon the biliary tract, stomach or the right kidney. These fistulæ are generally acknowledged to be among the most dreaded complications of abdominal surgery and present the most difficult problems in their management.

As will be noted from Table II there were four instances of duodenal fistula in the present series, all of them following operations in the upper quadrants of the abdomen. The one instance of successful treatment (Case 4, Table III) occurred when the fistula developed from the stump of the duodenum after a Polya resection of the stomach. Fortunately in such a case the loss of duodenal contents is only partial and with a gastroenterostomy already established, nutrition may be maintained until spontaneous closure has taken place. In these fistulæ, the use of constant aspiration for the removal of the discharges is of inestimable value in the prevention of skin digestion and infection. In some cases good results may be obtained from the local use of dressings of beef broth or peptone solution and hydrochloric acid, which preparations tend to neutralize the proteolytic enzymes and thus afford protection to the skin.

In addition to the use of a constant suction apparatus for the removal of irritating substances, thus promoting healing, it frequently becomes necessary to resort to jejunostomy in order that the duodenum may be put at complete rest and to provide for feeding and the maintenance of an adequate fluid intake. Some authors advocate gastroenterostomy with occlusion of the pylorus or complete pyloric exclusion by the Devine operation. We have not had experience in the use of either of these latter procedures as they have seemed unduly radical for such critically ill patients.

The one instance of a jejunal fistula occurred in a young woman of twenty-three who had been operated upon elsewhere six months prior to admission. At that time a bilateral salpingo-oophorectomy had been done and shortly thereafter an enterostomy had been required for the relief of acute intestinal obstruction. This had failed to close and at the time of her admission there was considerable skin irritation which was controlled by suction and her general condition was improved by transfusion. Operation was performed and the jejunal fistula closed. Her postoperative convalescence was uneventful and she was discharged cured two weeks later. In this single case of jejunal fistula the management and treatment did not differ materially from that employed in the remaining fistulæ situated

lower down in the intestinal tract and hence it has been grouped with them for further discussion.

These remaining cases may be conveniently considered from the standpoint of etiology. A very satisfactory although quite arbitrary classification of the fistulæ is given in Table IV.

TABLE IV. CLASSIFICATION ACCORDING TO ETIOLOGY

I	Fistulæ associated with appendicitis	30 =	32%
II	Fistulæ occurring as a postoperative complication	48 =	51%
III	Fistulæ due to chronic infectious granulomata	14 =	15%
IV	Fistulæ due to trauma	2 =	2%
		94 =	100%

Fistula Associated with Appendicitis

In this group there were thirty cases in which the fecal fistula clearly developed following operation upon the appendix. Of these thirty cases, eight occurred in patients who had been operated upon for appendicitis in the hospital (Table V). In all of these eight cases the infection had extended beyond the appendix and there was either a local abscess or a more general peritonitis.

TABLE V. FISTULÆ ASSOCIATED WITH APPENDICITIS

(30 cases = 32%)

Developed in hospital		8
Closed spontaneously	2	
Surgical closure	3	
Died (one during operative closure)	3	
Admitted with fistula		22
Not treated	5	
Closed spontaneously	1	
Treated by operation	16	
Cured	12	
Died	2	
Recurrence	1	
Improved with subsequent spontaneous closure	1	
		30

That the incidence of fecal fistula following operation for appendicitis is low is shown from the fact that during the nine-year period under consideration when these eight fistulæ developed, there were 234 cases of acute appendicitis with abscess or more or less generalized peritonitis which required drainage at the time of operation. The incidence of fecal fistula in these drained cases was therefore only 3.4 per cent while the total number of operations for acute appendicitis with and without perforation was 1,067, giving an incidence of fistulæ in only 0.8 per cent.

Of the eight hospital cases, two (25 per cent) closed spontaneously under conservative treatment. Three required subsequent operative closure and three died, one of the deaths occurring on the operating table during operative closure of the fistula, undoubtedly an anesthetic death. While it is impossible to draw conclusions from this very small group of hospital cases, the experience of others has shown that the fistulæ associated with appendicitis tend to heal without assistance and in the absence of complicating factors, operation should be advised only following a prolonged trial of conservative treatment.

Of the twenty-two cases admitted to the hospital with fecal fistulæ in which the appendectomy had been performed elsewhere, there was a definite statement that drainage had been employed in nine of the cases; in three the matter of drainage at the time of the original operation was somewhat uncertain but it is reasonable to assume that in all the wounds had been drained. None of the records contained a definite statement that the wound had been closed tight without drainage. Since five of these twenty-two cases were only seen in the Out-Patient clinic, there were seventeen in which treatment of some form was instituted. Sixteen of these were treated by surgical operation and one treated conservatively with subsequent complete closure. Of the sixteen cases treated by operation, twelve were cured, two died, there was a recurrence in one, while the other case was considerably improved with final closure following discharge from the hospital.

The location of the fistulous opening in these twenty patients operated upon is shown in Table VI.

TARLE VI. ANATOMIC LOCATION OF FISTULÆ ASSOCIATED WITH APPENDICITIS

Terminal ileum	13
Cecum	4
Ileum and cecum	2
Sigmoid	1
Undetermined	10
	30

The mechanism of the production of fistulæ following appendectomy with drainage or simple drainage of an appendiceal abscess is of interest. Undoubtedly in many

of the cases there is an actual inflammatory involvement of the wall of the lower ileum or cecum with secondary necrosis and perforation. Another mode of development is the opening of the stump of the appendix and considerable discussion has arisen as to the relative merits and disadvantages of invagination of the appendiceal stump. It is our practice to invaginate the stump with a purse string suture of catgut whenever the condition of the cecum will permit such a suture to be placed. Probably in a certain few instances an unrelieved intestinal obstruction due to a "U" or Lane kink in the terminal ileum occurs and perforation of the bowel takes place just above the point of obstruction, perhaps in such cases a fortunate happening.

As stated above, the fistulæ associated with appendicitis show a tendency to spontaneous healing and this is particularly true in the case of the cecal fistulæ. Here the chief obstacle to spontaneous healing and the main factor in causing the fistula to become permanent is the outgrowth of the cecal mucous membrane so that it becomes continuous with the skin forming the direct or lip type of fistula. When this occurs it becomes necessary to interfere surgically before a closure can be effected. The fistulæ in the lower ileum associated with appendicitis show less tendency to heal spontaneously, are more apt to be complete, and are associated with more marked irritation of the skin and more copious watery discharge which may require careful and prolonged preparation before operation can be safely considered.

Postoperative Fistulæ

The postoperative fistulæ made up the largest single group, there being forty-eight such cases (51 per cent). Seven of these cases followed enterostomy or other operations for acute intestinal obstruction secondary to an appendectomy performed several months or more previously. They may be regarded therefore as indirectly due to appendicitis. Table VII lists the original operations following which the fecal fistulæ developed. Of these forty-two cases, seventeen developed as a terminal affair shortly prior to death, in patients with severe generalized peritonitis or advanced cancer of the stomach, and did not play a significant part in the final outcome. Disregarding these

TABLE VII. POSTOPERATIVE FISTULÆ

Original operation:	
Operation for acute intestinal obstruction due to to previous appendix operation	7
Biliary tract	6
Gynecologic operations (laparotomy)	9
Gynecologic operations with subsequent enterostomy	5
Operation for strangulated hernia	3
Gastro-enterostomy	2
Ureteral transplant	2
Partial gastrectomy (polya)	3
Enterostomy	4
Resection right colon	1
Nephrostomy and drainage perinephric abscess	1
Drainage of abscess from sigmoid diverticulitis	1
Resection of small intestine	1
Operation for intussusception	2
Exploratory laparotomy	1
	48

three terminal cases and the four instances of duodenal fistulæ which have already been discussed, as well as the five patients who were not treated, there are left for consideration thirty-six instances of postoperative fistula. Nine of these were treated conservatively without operation and twenty-seven required surgical intervention for a closure. Twenty-four of these twenty-seven patients were discharged cured, one died, and the remaining two required stage operations and the treatment is as yet incomplete. Of the nine cases treated without operation, three were cured, spontaneous closure of the fistula taking place, three died and three were discharged improved. These three patients were not heard from following their discharge so that the ultimate result is not known.

TABLE VIII. POSTOPERATIVE FISTULÆ
(48 cases = 51%)

Fistula developed as a terminal complication	3
Duodenal fistula	4
Not treated	5
Treated without operation	9
Cured	3
Died	3
Improved	3
Treated by operation	27
Cured	24
Incomplete (stage operations)	2
Died	1
	48

In recent years the incidence of fistulæ following abdominal operations has decreased, perhaps due to the more careful and intelligent use of drainage. Drains of soft rubber and gutta percha have today largely replaced the glass and stiff rubber tubes of earlier times. Likewise, it is now a well established fact that the gauze tip of a cigar-

ette drain must not be allowed to rest against a suture line or an anastomosis where it is prone to favor leakage, but instead it should be placed a short distance away and the suture line protected when possible by the interposition of the omentum.

Fistulæ Due to Chronic Infectious Granulomata

1. *Tuberculosis.*—Thirteen patients in the series had complicated fistulæ because of the presence of a tuberculous infection. Of these thirteen cases there was positive microscopic evidence of tuberculosis in the tissue removed at biopsy, operation or subsequently at autopsy in nine. In the remaining four the diagnosis of tuberculosis was presumptive in that there was no microscopic confirmation but with the abundant clinical evidence of tuberculosis at hand there seemed to be little doubt of the accuracy of the diagnosis. These four patients had tuberculous lesions elsewhere in the

TABLE IX. TUBERCULOUS FISTULÆ
(13 cases = 14%)

Anatomic location of fistulæ:	
Ileum	1
Cecum	6
Transverse colon	1
Descending colon	1
Sigmoid	1
Undetermined	3
	13

body and the fistulæ showed the characteristic behaviour of tuberculous fistulæ, the skin about the mouth of the fistula having a very unhealthy appearance and no tendency to heal could be noted. Table IX shows the location of the opening in the bowel in these tuberculous cases. Of the thirteen cases, seven were treated conservatively and of these two died in the hospital, none was cured, and five remained unimproved or showed only slight improvement. The other six were operated upon and three died following operation, two were cured by operation and one was unimproved, the fistula promptly recurring. The case histories of these thirteen tuberculous fistulæ are interesting, in that six patients had had their appendices removed, this operation being followed by the fecal fistula. Undoubtedly there had been either an error in diagnosis, a tuberculous enterocolitis being mistaken for a lesion of the appendix, or an

TABLE X. RESULTS OF TREATMENT IN TUBERCULOUS FISTULÆ

Treated without operation	7
Died	2
Unimproved	5
Cured	0
Treated by operation	6
Died	3
Unimproved	1
Cured	2
	13

acute pyogenic infection of the appendix had become superimposed upon an older tuberculous process. While it is true that two of the cases were cured by surgical operation, we believe that if a fecal fistula is unmistakably tuberculous, the best treatment is conservative since surgical intervention is so apt to result in failure. Moreover, our rule is that if upon opening the abdomen at any time a tuberculous lesion is found, no operation which requires opening the lumen of the intestine is to be performed since the suture line involved in the closure or in an anastomosis is prone to break down and the resulting fecal fistula is almost certain to be permanent. Probably a good many persistent fistulæ following appendectomy are actually due to an unsuspected tuberculous infection since in general the fistulæ associated with appendicitis tend to close of their own accord.

2. *Actinomycosis.*—Only one case in the series was due to an actinomycotic infection. This patient, a man of thirty-nine, was admitted with a right subphrenic abscess which was drained surgically. Subsequently a fecal fistula developed and the opening in the bowel was shown by barium enema studies to be in the ascending colon. A biopsy from the wound showed the characteristic colonies of actinomyces and no attempt at surgical closure of the fistula was made, the treatment consisting of potassium iodide internally, Roentgen irradiation and copper sulphate dressings. When last seen there was very slight improvement in the fistula. In all probability this was an actinomycotic infection of the right colon with perforation which was responsible for the subphrenic abscess and the external fistula later developed following the drainage of this abscess.

Fistulæ Due to Trauma

There were only two cases in the series in which an abdominal injury was responsible

for the fistula. The first, a man of forty, was struck in the abdomen and an operation was performed shortly thereafter, at which time a rupture of the intestine was repaired. Leakage followed and the patient was admitted to the University Hospital seven months later. At the time of operation the fistulous opening was found to be in the ileum, a simple closure was made and the patient made an uneventful recovery.

The second traumatic case was that of a nine-year-old boy who had had a part of the abdominal wall blown away in an explosion. Peritonitis developed but no surgical operation was necessary. During the course of his long hospital stay, a fecal fistula developed which at the time of the operative closure by one of us (FAC) two years later, was found to be located in the ileum. A simple closure was made, the ventral hernia repaired, and he was discharged cured after an uncomplicated convalescence.

Treatment

Any discussion of the management of intestinal fistulæ requires a consideration of the indications and requirements for operation, of preoperative preparation, and of technical procedures. For this purpose, the following classification proposed by Lewis and Penick[1] is of assistance.

I. *Tubular Fistulæ.*—This group includes the indirect fistulæ, which communicate with the body surface by means of a tract lined with granulation tissue. In general this is the most favorable type of fistula for nonoperative treatment, since, as Lewis and Penick point out, the longer and the more tortuous the fistulous tract, the greater is the likelihood of spontaneous closure.

II. *Lip Fistulæ.*—In this group are included those direct fistulæ in which the intestinal mucous membrane has become continuous with the skin. Here the indications for surgical treatment are clear, inasmuch as such a fistula cannot close spontaneously, although the opening may diminish in size, as the scar tissue about its edges undergoes contraction.

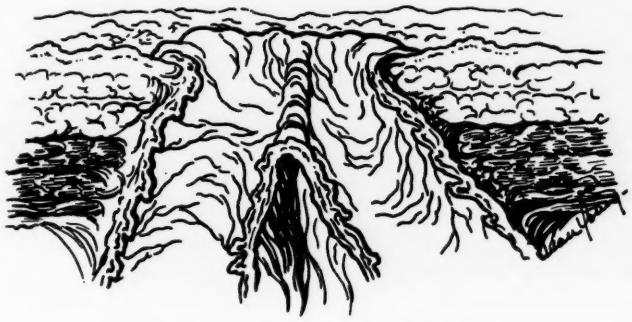
III. *Complicated Fistulæ.*—In this group belong those fistulæ due to or made permanent by neoplasm, chronic granuloma, or foreign body, as well as those in which anatomic peculiarities, such as herniation, spur formation or evagination of the bowel, prevent spontaneous closure. Likewise, cases in which obstruction exists distal to the fistula are included in this group. In such cases, it is quite obvious that no form of treatment can succeed until the cause of the persistent obstruction has been removed. Hence it is highly important that any of these complicating factors should be recognized early, since in such instances the plan of treatment must be so designed as to deal with them. For example, careful biopsies taken from the fistulous tract, or the mouth of the fistula, are necessary when neoplasm, tuberculosis or actinomycosis are suspected, while roentgenologic studies by means of the barium meal or enema may reveal the presence of obstructive lesions, and will usually give information regarding the exact location of the opening in the bowel, the existence of multiple openings, et cetera. Frequently, injection of the fistula with lipiodol is of value, especially when done in conjunction with the barium enema.

Preoperative Preparation.—Mention has already been made of some of the methods employed in the preparation of the skin prior to surgical operation in the case of the high intestinal fistulæ. A vast number of medicinal substances such as olive oil, vaseline, zinc oxide, iodoform, glue and many others have been recommended for local application. An intriguing suggestion was made in 1927 by Caryl Potter,[2] who advocated dressings of tenth normal hydrochloric acid and beef broth mixed with olive oil. The acid serves to neutralize the alkaline intestinal secretion, while the protein splinting enzymes of the pancreatic juice exert their action upon the readily available beef broth.

We have come to believe that most important of all is scrupulous cleanliness along with exposure of the skin in a warm, dry atmosphere. This can best be accomplished by abandoning all forms of local dressings, and in their stead the use of constant suction during the day time, with resort to the use of an anterior Bradford frame at night as described by E. B. Potter.[3]

In a certain few of the small intestinal fistulæ, particularly those situated in the upper ileum or jejunum, in spite of any of the methods employed, we have found it impossible to greatly improve the condition of the skin, at least sufficient for operation to be made possible. In such cases where operative closure is out of the question, a

method which has been found helpful is illustrated in Figures 1 and 2. Since the fistulous opening is usually situated on one side of the abdomen, usually the left, an incision is made at or near the midline, going through healthy tissue. Upon careful abdominal exploration, the operator is able to demonstrate that no obstruction exists distal to the opening, whereupon a lateral anastomosis is then made between the two arms of the intestine leading to and from the fistula, and the abdominal incision closed. When the anastomosis has become sufficiently strong, the fistulous opening is plugged with gauze and protected with a snug dressing. By this method the skin usually heals rapidly and subsequently the opening in the intestine can be dissected out, the scar excised, and a closure made.



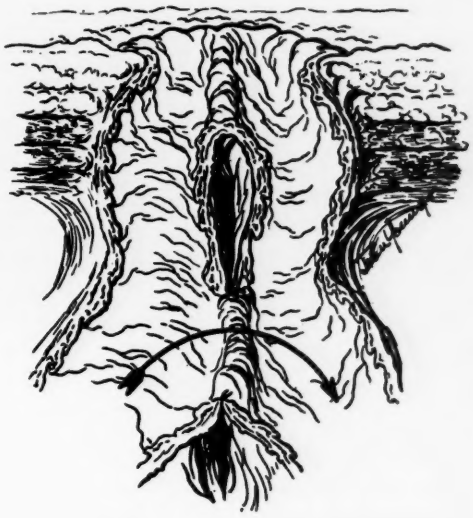


Fig. 1 (*left*) and Fig. 2 (*right*).

TABLE XI. SUMMARY OF SURGICAL TREATMENT

Operations performed:	
Simple closure	28
Resection of ileum	8
Closure and enterostomy	4
Colostomy (temporary)	5
Resection ileum and cecum	2
Partial colectomy	5
Enteroenterostomy and closure	2
Jejunostomy	1
Colocolostomy	1
	56

8 operative deaths = operative mortality of 14%
43 patients cured by operation = 77% cures

Table XI summarizes the various operative procedures required in the fifty-six cases treated surgically. As will be noted, over one-half of the cases could be dealt with by simple closure or closure plus a proximal catheter enterostomy to relieve tension at the suture line. In less than one-half of the cases were the more complicated procedures found necessary. In the surgical treatment of fecal fistula, no set rule can be laid down with reference to the operation of choice. It is frequently the case that it is impossible to determine the proper procedure until the abdomen has been opened and the exact state of affairs observed. Hence, in dealing with these lesions, the resourcefulness of the surgeon is constantly taxed, since frequently an operation which promises to be a relatively simple procedure may suddenly become one of exceptional magnitude.

In the sigmoidal fistulæ where the bowel opening lies deep in the pelvis and is associated with a pelvic abscess, temporary colostomy may be not only a life saving measure, by ending the constant reinfection and thus allowing the pelvic inflammation to subside, but, moreover, by putting the lower bowel segment at complete rest, will permit healing to take place. Roentgenologic studies may later be made at intervals, and only when these studies no longer show evidence of the fistula, the colostomy is closed. This is a very tedious and time-consuming form of treatment for the patient but in the type of case in which it becomes necessary, the marked general improvement from an alarmingly septic condition to normal health, with ultimate cure of the fistula, makes its employment well worth while.

End-Results

Table XII indicates the results of treatment in the entire series. While the operative mortality of 14 per cent is high, the fact that 77 per cent of the patients treated by operation were completely cured is encouraging. It is probable that in the future, with the general employment of a meticulous preoperative régime, such as the one now commonly used for patients who are to undergo colonic resections, this mortality may be appreciably lowered. One of the most promising recent developments along this line is the intraperitoneal injection of a colon bacillus, or colon bacillus and streptococcus vaccine, as described by Rankin[4, 5] and Steinberg.[6, 7]

The contrasting small percentage of cures and considerably higher mortality among those patients treated without operation, should not be taken to mean that had operation been performed, some lives might have been saved. The indications for surgical and for non-operative treatment are quite definite and very seldom is it a matter of choice between the two for either surgeon or patient.

It should also be emphasized that many of those patients who were treated conservatively and who died, died with their fistulæ and not from them; the cause of death usually being the primary lesion which was in part at least responsible for the fistula. Thus many of these deaths were due to inoperable malignancy, extensive infection or other more remote sequelæ.

TABLE XII. END-RESULTS

Cured	49 = 58%
Improved	8
Died	20 = 23%
Incomplete	2
Unimproved	2
Unknown	2
Not treated	10
	94

12 patients treated conservatively died = mortality of 43%
7 patients treated conservatively were cured = 25% cures

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THE SOURCE AND PRODUCTION OF STERILE SURGICAL MAGGOTS*

J. G. MOLNER, A.B.† and F. O. ADAMS, B.S.‡

DETROIT, MICHIGAN

The clinical use of sterile maggots, introduced to surgery in 1929 by W. S. Baer, has attained a definite place in the treatment of chronic osteomyelitis, tuberculous abscess and other chronic inflammatory conditions. Since its first announcement, the Baer method of treatment has attracted the attention of orthopedic and general surgeons in the United States and in other countries. During the past three years the maggot treatment, especially in cases of chronic osteomyelitis, has enjoyed an increasing popularity.

To furnish the maggots necessary for this form of treatment, it is essential that they be available in very large numbers throughout the year. In order that maggots may be supplied to the surgeons in Detroit, the Laboratory of the Department of Health began in the summer of 1933 to collect and raise the parent flies. On the suggestion of the United States Bureau of Entomology, the species Lucilia Sericata, more commonly known as the blowfly, has been selected. The larvæ of this species have been found to give the most favorable therapeutic results, and under favorable conditions there are no serious difficulties en-

*From the Laboratory, Detroit Department of Health.

†J. G. Molner, A.B., 1931, College of the City of Detroit, is Bacteriologist with the Detroit Department of Health, Senior medical student at the Wayne University, College of Medicine, and Assistant in the departments of Histology-Embryology and Public Health.

‡Fred O. Adams, B.S., 1915 Michigan State College, is Assistant Director Detroit Department of Health Laboratories.

countered in rearing this species throughout the year. The flies and larvæ are adaptable to fairly wide ranges of temperature and humidity, although the most favorable conditions are a temperature between 75° and 85° F., and a relative humidity between 50 and 60 per cent.

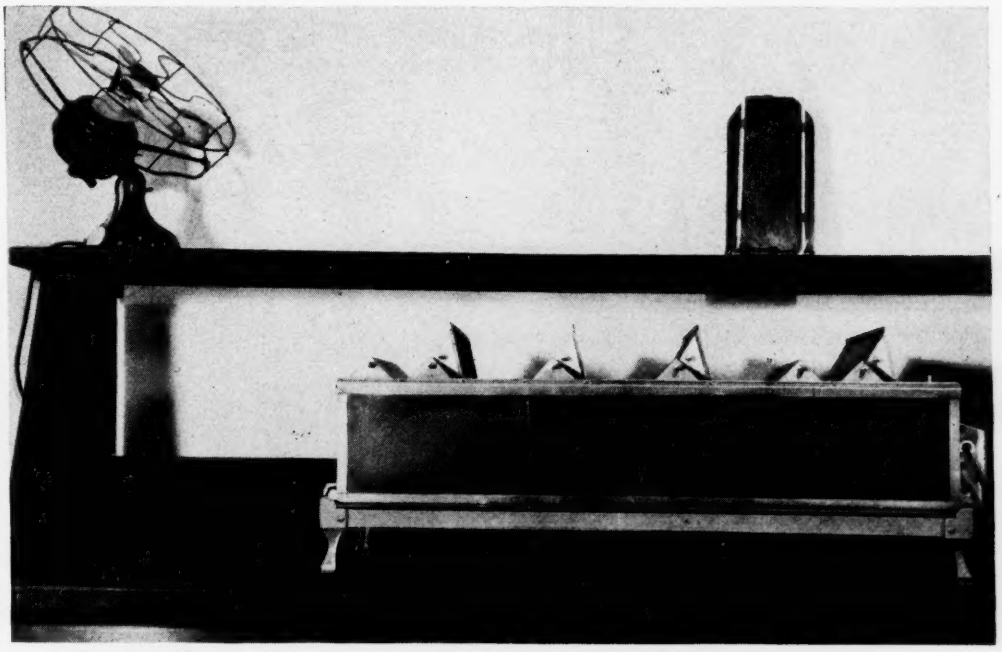

Fig. 1.

To provide favorable conditions for the production of maggots, a well lighted room is set aside as the "fly room." The temperature and humidity of this room are kept constant by means of two large baths filled with water kept at a temperature of 90° F. by means of thermostats. The water evaporating from the baths is sufficient to maintain the desired humidity under ordinary weather conditions. When marked lowering of outdoor temperature occurs, the steam radiators and running hot water are utilized to bring about the required conditions. A large electric fan which runs continuously keeps the air in the room in a state of constant circulation (Fig. 1).

The fly cages are of wooden frame type with solid bases, and measure 18 inches in all dimensions. The frame work is covered with surgical gauze and may be easily changed when soiled (Fig. 2). A sleeve with a purse string on one side of the cage facilitates the placing of food into the cage as well as the introduction and removal of the flies and eggs. In these cages from 100 to 150 flies may be kept.

The food, a balanced mixture adequate to supply the essential elements for maintenance of life, consists of 450 gms. of cane sugar, 30 gms. of egg yolk, and 3 gms. of brewer's yeast. These ingredients are thoroughly mixed and a small quantity is placed in a small evaporating dish or Petri dish in each cage. The water is provided by inverting a 150 c.c. round mouth bottle into a Syracuse watch-glass over a small pad of gauze. The water absorbed by the gauze pad is sufficient to supply the needs of the flies. A fountain of this type prevents the loss of flies by drowning (Fig. 2).

Fig. 2.

The life cycle of the fly is represented by

the following stages: egg, larva or maggot, pupa and fly. The eggs are curved, white, glistening cylindrical objects, slightly tapered at each end, measuring approximately

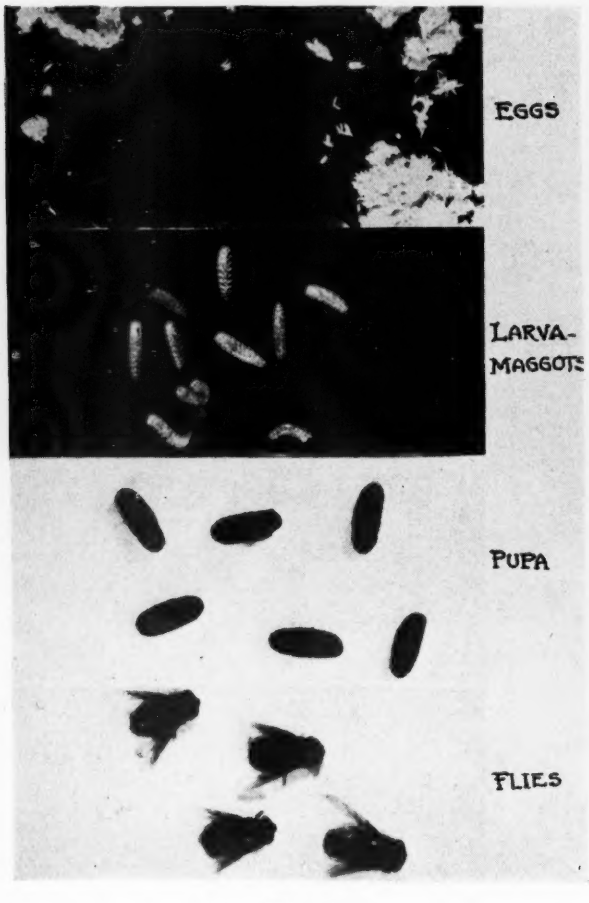

Fig. 3.

1.1 mm. in length and 0.2 mm. in diameter. One thousand of these eggs weigh approximately 100 mgms. Hatching of the eggs will take place in from 8 to 24 hours at a temperature of about 80° F. When first hatched the larvæ or maggots are no larger than the eggs but, when well fed and housed in a dark place, they grow rapidly and attain the pre-pupal stage in from five to seven days. At this stage the maggots cease feeding and wander about, seeking a dry secluded spot where they may pupate. Pupation takes place by the outer tegument of the larvæ undergoing a hardening and a change in color from a pinkish-grey to a dark brown. The stage of puparium lasts from 7 to 10 days. Under suitable atmospheric conditions the stage of puparium ends by the young fly emerging from its pupal shell (Fig. 3).

Female flies begin to lay their eggs within five to seven days after emerging from their pupal shells. Each female will lay approximately 500 eggs per week and the optimum egg-laying period extends over five to six weeks. To collect these eggs, lean

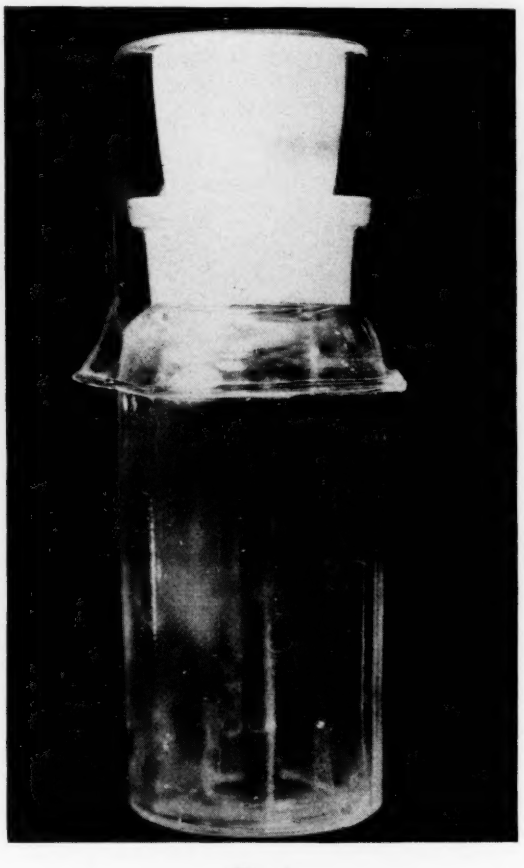

Fig. 4.

raw beef in portions about 2 inches square and one-half inch thick are placed in small Petri dishes padded with moistened filter paper. These are set in the fly cages containing from 100 to 150 flies. After six to eight hours each cage will contain several thousand eggs which will be found deposited in crevices in the pieces of meat. By means of a scalpel the eggs may be removed in masses. These masses are weighed and each 100 mgms., representing 1,000 potential maggots, is handled separately. For therapeutic purposes it is customary to distribute maggots in lots of 1,000.

To sterilize the maggots, the individual masses of eggs are placed in sterile Petri dishes between two pieces of No. 42 filter paper, and 3 c.c. of 1 per cent formalin solution is poured over them. The dishes containing the eggs and formalin are then placed in the refrigerator for forty-eight to

seventy-two hours. Chilling of the eggs prevents hatching and if not continued over seventy-two hours does not destroy their viability. Indeed, such chilling enhances the separation of the eggs from each other because of its softening effect on the chitin-like substance which holds them together. These partly separated eggs are further broken apart by gentle pressure and slight rotation by means of the tips of the fingers. All small clumps must be broken up; otherwise, complete sterilization will not be possible.

After the eggs have been completely separated from each other they are placed in a sterile test tube and rinsed twice with 20 to 30 c.c. of sterile distilled water. With the separation of the eggs and the washing, the preliminary steps of sterilization have been completed. The eggs are next transferred to another sterile test tube containing the sterilizing solution. This solution consists of 1 c.c. of concentrated (40 per cent) formaldehyde, 1 gm. of sodium hydroxide and 18 c.c. of sterile distilled water. A five-minute immersion of the eggs in the alkaline formalin solution and gentle agitation by means of the sterile applicator is sufficient to sterilize the eggs. To wash out the disinfecting solution, the eggs are poured into a sterile perforated Gooch crucible containing a small piece of sterile gauze bandage at its bottom to act as a strainer. About 100 c.c. of sterile distilled water is poured over them (Fig. 4).

Eggs thus treated may be considered sterile, and under aseptic conditions are transferred, together with the gauze on which they are collected, to a sterile food bottle. The food used for the larvæ is composed of a small flat piece of liver placed in a wide-mouth bottle containing 4 c.c. of plain agar (Fig. 5). Bottles containing this food are sterilized by being autoclaved at 20 pounds pressure for twenty minutes. These bottles are plugged with gauze-cotton stoppers. After the eggs are transferred to the food bottle and the gauze over the gauze-cotton stopper is securely fastened by means of a rubber band, the bottle is placed in the fly room where the conditions are favorable for the hatching of the eggs into the larvæ or maggot stage.

Under ideal fly room conditions the eggs will begin to hatch in about twelve hours. To be certain that these maggots are suitable for surgical use, a sterility test is made on each bottle. For this purpose a small amount of the liquid material is removed together with ten or fifteen maggots. The

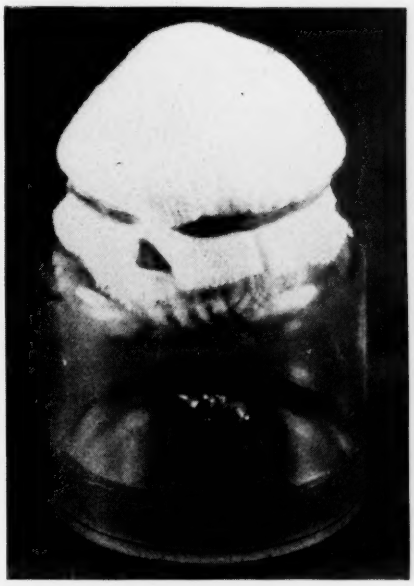

Fig. 5.

maggots are macerated in the liquid obtained from each bottle under aseptic conditions and the substance is cultured ærobically as well as anærobically. Three cultures are made under both conditions. For this purpose we use deep dextrose agar stabs for anærobic cultures and plain agar slants for ærobic cultures. After cultures have been made, the bottles are kept in the fly room for an additional hatching period. Almost all of the eggs will hatch in twenty-four to thirty-six hours. All unhatched eggs still remaining within the bottles are removed on the gauze by means of sterile forceps.

Maggots measuring approximately 5 mm. in length are most suitable for surgical use. Growth of maggots is retarded if they are kept in the refrigerator. This procedure may be followed for not more than three days, because longer refrigeration has been found to shorten the feeding period and to lessen the feeding capacity of the maggots. If no growth of bacteria is found on the sterility test-cultures after forty-eight hours, the maggots are ready for sending to the physician for therapeutic purposes. It has been observed that the most active maggots are those which are used within seventy-two hours after they are hatched.

A difficulty frequently encountered when

maggots are to be used therapeutically is in the removal of them from the food bottles. While in the refrigerator, maggots will burrow into the agar which is in the bottle.

Fig. 6.

To drive them upward and onto the surface of the agar the bottle may be placed directly upon a small cube of ice for about four minutes. When once on the surface of the agar they can be removed from the bottle by introducing about 25 c.c. of sterile saline and pouring the maggots onto a piece of sterile gauze. From this they can be transferred to the wound to be treated.

To Develop Breeding Flies

The scattered groups and individual eggs that are not removed from the pieces of meat are, under ordinary conditions, sufficient to supply the flies necessary for breeding purposes. The meat containing these eggs is placed in a dressing jar or other container of approximately 1500 to 2000 c.c. capacity. To insure a plentiful supply of food for the young larvæ, scraps of chopped beef, vegetables, or orange peelings are placed in the container. The container is then placed within another larger container, the base area of which is about five times that of the one containing the food scraps. In this outer container, sterile sand is placed to a depth of 1 or 1.5 inches. To prevent the escape of maggots it is advisable to cover the opening of the outer container with fine mesh gauze in such a way that no outlet is present at the margins.

The only disagreeable odors produced during the process of propagation are those arising from decaying meat within the inner container. To reduce this odor the container may be placed in a darkened cabinet provided with ventilation to the outside. The residues from the food of the brood larvæ are particularly offensive and should be disposed of immediately after the maggots have migrated out of the feeding container into the sand.

After a feeding period of five to seven days, the maggots attain full growth and migrate into the sand to pupate (Fig. 6). After three or four days of quiescence the pupal formation is complete and the pupæ may then be screened from the sand and separated from the few maggots that have failed to pupate. At ice box temperature the hatching of pupæ may be retarded indefinitely, and whenever it is found necessary to replenish the brood of flies they may be removed from the ice box and placed in the cages. Within two to three days at fly room temperature the flies will emerge from the pupal shells.

The method of rearing flies and maggots herein reported has proven very satisfactory and the laboratory has been able to supply sterile maggots within five days from time of request. When the demand is anticipated or if it is continued, maggots can then be supplied daily.

Summary

Maggots may be produced satisfactorily if favorable conditions are maintained.

Several difficulties encountered in the cultivation of maggots have been enumerated and means for overcoming them outlined.

We wish to acknowledge the helpful suggestions of Dr. J. A. Kasper and the photographic aid of Mr. S. Leroy Simmons. We also wish to thank Mr. H. W. Blades of the Petrolagar Laboratories for his helpful suggestions.

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BRAIN TUMOR COMPLICATING PREGNANCY

WILLIAM H. MEADE, M.D.†
MANISTEE, MICHIGAN

This is a case report of a brain tumor complicating pregnancy and is presented because of its rarity and the similarity of brain tumor and toxemia of pregnancy.

On July 29, 1932, Mrs. S. A., aged twenty-four, housewife, entered my office complaining of an umbilical rupture and amenorrhea. Her last period was May 1, 1932, and she had all the other symptoms of early pregnancy. She was anxious to know if the umbilical hernia would interfere with labor.

She had the usual childhood diseases without any complications. At the age of fourteen she had a tonsillectomy and a fracture of the left femur at the age of twenty-two. She had had occasional headaches since childhood which were never accompanied by vomiting. There were no cardio-respiratory, gastro-intestinal, or genito-urinary symptoms. Her average weight was 100 pounds. There was no history of convulsions, epileptiform, dizzy or syncopal attacks nor numbness and tingling in the extremities.

Menophania occurred at the age of fourteen. Her periods were regular until the present complaint.

Physical examination revealed that the patient was an underweight, asthenic, young, adult female who did not appear ill. Her head, ears, nose, larynx, and mouth showed no abnormalities. The pupils of the eyes were equal, round, and reacted to light and in accommodation. The extra-occular movements were normal. The eye grounds were negative. She had two carious teeth. The thyroid showed smooth enlargement (1 plus). The thorax, lungs and heart were normal. Her blood pressure was 118/70. The radial pulses were equal. Her abdomen was flat and soft. There were no masses or tenderness. There was an umbilical hernia. The genito-urinary examination showed the labia, clitoris and urethra to be negative. The vaginal introitus was marital and purplish. The cervix was soft and the uterus was enlarged to about two and one-half months pregnancy. There were no abnormal reflexes.

Laboratory findings were: Hemoglobin, 65 per cent Kahn test reaction, negative. Urine examination, negative results chemically and microscopically.

Quickening occurred on September 23, 1932. A monthly check of her blood pressure and urine revealed no abnormality. On December 12, 1932, in the seventh month of pregnancy, the patient complained of moderate headaches. The blood pressure and urine remained normal and the headache was relieved by 5 to 15 grains of amidopyrine daily. On January 1, 1933, the patient began to vomit and the headaches became so severe that she and her family feared she would lose her mind. An examination of the eye grounds showed a papillidema of 1.5 diopters. Large doses of magnesium sulphate were given daily and very definitely relieved the headaches. The patient slept very well on phenobarbital 0.1 grms. On January 10 the papillidema had increased to 3 diopters and there was no change in the blood pressure or urinary findings, but there was moderate swelling of the ankles, face and hands. An intravenous injection of 50 per cent glucose was given, relieving the headache. On January 17 the patient was hospitalized and an attempt was made to induce labor. The papillidema increased to 4 diopters. The pulse steadily increased but the temperature and respiration remained normal. The following day intravenous glucose was again administered and within five minutes the patient developed a convulsion, became unconscious, and developed a bilateral positive Babinsky and a positive Hoffman sign. She regained consciousness in about two hours, but the pulse had increased to 140. At 4 o'clock of the same day she died. An immediate postmortem cesarean section was done and a living male infant was delivered.

Until the time of the convulsion the patient had no abnormal reflexes. No sensory changes were discovered.

There was a flattening of the convolutions of the right cerebral hemisphere and a cyst measuring 2.5x2x1.5 cm. was found in the right ventricle at the foramen of Monroe. This was attached to the choroid plexus. The ventricle was markedly dilated. The remainder of the organs showed the usual postmortem changes, except the uterus which had a surgical wound, 14 cm. in length. The pathologist's report of the pathologic specimen was "ependymal cyst of the choroid plexus."

Summary

1. This is a case of primipara, who during the course of a normal pregnancy, developed signs and symptoms of increased intracranial pressure without abnormal reflexes and who died following the intravenous injection of a hypertonic solution.

2. The symptoms were suggestive of toxic pregnancy, but the condition was eliminated by the failure of the blood pressure to rise and albumin to appear in the urine.

3. A sub-temporal decompression might have been done on the evidence of increased intracranial pressure.

4. A lumbar puncture was certainly contraindicated due to the position of the tumor.

5. A living infant may be delivered by a post mortem cesarean section if done immediately after the death of the mother, particularly if she is nontoxic.

†Dr. William Meade received his Bachelor of Science degree from the University of Detroit, 1929, and Medical Degree, University of Michigan, 1930. He served his internship at St. Lawrence Hospital, Lansing, Michigan, and is resident physician at the Michigan State Sanatorium.

MULTIPLE ACUTE PERFORATED DUODENAL ULCERS

EDWARD DOWDLE, M.D., F.A.C.S.†
DETROIT, MICHIGAN

The surgical literature, in general, gives a mortality of 23 per cent in cases of acute perforated duodenal ulcer with operation, and 65 per cent of these deaths are attributed to peritonitis, the latter occurring in direct ratio to the number of hours that have elapsed between the time of perforation and operation for same.

All the cases of general peritonitis, however, are not the result of the ulcers operated upon, as is shown in the following case report, wherein an undiagnosed acute perforation of a second ulcer took place six days following the operation for the first ulcer, with resultant general peritonitis and the death of the patient.

Case Report

W. W., male, aged thirty-eight years, American, was admitted to Providence Hospital Monday, January 1, 1932, at 9 a.m., complaining of severe agonizing abdominal pain, having been suddenly stricken six hours previously while he was at work. The pain was continuous in onset and localized to the epigastric region and was so severe that he could hardly breathe; he was forced to lie with his legs drawn up. He was nauseated at onset of attack but did not vomit.

He gave a history of having had painful indigestion for the past three or four years. For several weeks at a time, two or three times a year, he would suffer epigastric pain two or three hours after eating. This pain was always relieved by eating or by taking soda. He received practically no medical treatment for this and he attributed it to heavy drinking in which he periodically indulged.

The patient was a rather asthenic, male adult, fairly well developed and nourished, presenting the appearance of being acutely ill and in severe pain. He was very pallid, his face bathed in perspiration. With the exception of the abdomen, the physical examination gave negative findings.

The abdomen was flat and presented a board-like rigidity throughout, and there was marked tenderness in the epigastric region. The area of the liver dullness was normal. Temperature on admission was 100; pulse 100; respirations 16. White blood cell count: 15,000, polymorphonuclear cells, 80 per cent.

The patient was immediately fluoroscoped and although no free air was seen above the liver, a diagnosis of acute perforated duodenal ulcer was made and operation for same was immediately performed.

Operation.—A five-inch right mid-rectus incision was made above the umbilicus. A moderate amount of serous fluid was present in the abdomen. A heavy deposit of fibrin was present over the fundus of the gall bladder and pyloric region of the stomach. Fibrinous adhesions existed between the first part of the duodenum, omentum and gall bladder. The stomach was delivered on to the abdomen, exposing the first two inches of duodenum. About one inch distal to the pyloric ring, on the anterior surface of the duodenum almost on its upper border, there was a perforated duodenal ulcer allowing the escape of gas and stomach contents. The perforation was large enough to admit the end of a probe. The induration around the perforation extended half an inch in all directions. The ulcer was inverted by mattress sutures, approximating the duodenum above and below the ulcer, after which the gastrohepatic omentum and the gastrocolic omentum were sutured over the site of the ulcer. A perforated soft rubber tube was introduced down to Morrison's pouch to a stab-wound in the right loin. The wound was closed in layers. The patient was returned to his room in good condition.

From the time of operation up to midnight the following Saturday, a period of six days, the patient's postoperative course was satisfactory in every respect. He did not vomit at any time. The abdominal distention was only of a moderate degree and enemas given on the third and fourth days postoperative, were effective. He suffered only a moderate degree of abdominal pain for the first three days. The abdominal incision early showed signs of infection and there was a purulent drainage from it from the fourth day on. For the first four days there was a marked sero-purulent drainage from the stab wound. The patient was placed on fluids on the second and third days postoperatively and on a liquid diet on the fourth. His temperature from Monday to Saturday ranged from 99 to 101, gradually reaching normal by Saturday. The pulse rate for the first three days ranged between 110 and 120, after which it decreased in frequency, attaining a rate of 80 per minute on Saturday. Respirations were between 20 and 24. He felt and appeared quite well. The infected wound was the only apparent untoward complication. When I saw him on Saturday I was positive that he was entirely out of danger and that it was just another case in which there was no more need for concern.

About 1 a.m. Sunday, January 10, six days following the original operation, the patient was awakened from his sleep by a sudden severe pain in the upper part of the abdomen. Morphine was administered and when seen by me at 10 a.m. Sunday he appeared very acutely ill—much more so than before being operated on the preceding Monday. The pain had been continuous and very severe since early morning and his temperature, when I saw him, was 103. His pulse-rate was 145 per minute. Respirations were 25.

The abdomen was only moderately distended, but there was marked tenderness in the upper part of the epigastrium. The abdominal wound was still draining pus. Orthodox treatment for peritonitis was immediately instituted, viz., morphine p. r. n., and hot turpentine stupes to the abdomen, and salt solution and glucose intravenously and by hypodermoclysis; in other words, an attempt was made to obtain bodily, mental and intestinal rest, and to maintain the fluid and food intake.

†Dr. Dowdle is Attending Surgeon at Providence and Eloise Hospital, Detroit. He is a graduate of Cornell University Medical College, New York City, 1909, and served his internship at Bellevue Hospital, New York City, July, 1909, to July, 1911.

Something had happened to this patient that was entirely unexpected on account of the satisfactory immediate postoperative course. It seemed most probable to me that a leakage of the operated ulcer with resultant local peritonitis had taken place, although the patient described the pain as being exactly in the same location and of the same nature and severity as the pain preceding the operation. Also, the patient was too ill and too prostrated to be accounted for by a local peritonitis.

Several of my confrères were called in consultation and they all agreed with me in the diagnosis of a localized peritonitis, resulting from a leakage of the operated ulcer, and it was agreed to treat him expectantly.

Why a leakage had taken place was hard for me to understand as the ulcer had been closed easily and satisfactorily. Someone suggested, to my discomfiture, that I had fed the patient too soon. Nevertheless, I went over the steps of the operation many times in my own mind and could not help but conclude that I probably had sewed up the opening too tight with resultant necrosis of the gut wall resulting in the leakage. White blood cells: 21,550, polymorphonuclear cells, 86 per cent.

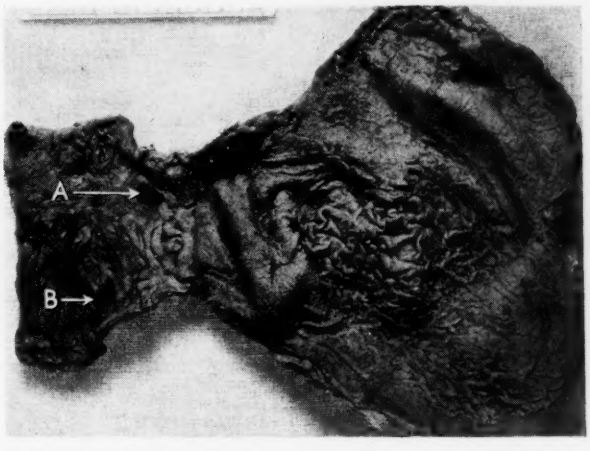
From the onset of this complication up to the time of his death the patient was very acutely ill, presenting the text-book appearance of a virulent generalized peritonitis. His pulse rate ranged continuously between 120 and 150 per minute. Temperature ranged from 101 to 103. Respirations 25 to 35. Within twenty-four hours the abdomen became very markedly distended, which resulted in the operative wound opening up quite markedly down to the peritoneum.

Coincident with this distention he started to vomit and this occurred repeatedly throughout the remainder of his illness. A Levin tube was inserted to offset this complication, and it drained profusely and constantly. The operative wound drained continuously a profuse serous-like secretion which resembled in many respects the drainage I encountered following an operation for a ruptured pancreas with resulting traumatic pancreatitis. Frequent repeated dressings were necessary to take care of this profuse drainage. Although for three or four days his condition seemed to improve somewhat in that he commenced to pass flatus and have bowel movements with resultant lessening of the abdominal distention, nevertheless he continued to grow much weaker.

On January 16, five days following the onset of the complication, a mass was palpable in the lower part of the abdomen. Under local anesthesia two incisions were made over the mass and only a small amount of the seropurulent material was obtained. However, it was manifest that there was an extreme degree of intra-abdominal adhesions. He expired January 19, fifteen days postoperative.

An autopsy, limited to the abdominal cavity and contents only, was performed immediately after the patient's death. The findings were as follows:

"All the abdominal organs are intimately fused together by strong bands of adhesions and agglutinated pus and fibrin cover their surfaces. Pus is found in all of the peritoneal spaces, the amount varying from 10 c.c. to 50 c.c. This pus is creamy in color and contains food elements. The greater and lesser omentum show fatty necrosis, the result of pancreatic ferment. The liver is markedly congested, slightly enlarged, shows areas of fatty necrosis and infarction. The gall bladder is markedly distended and filled with greenish bile. The ducts are free of stones; however, they are markedly sclerotic, exhibiting strong evidence of a previous chronic infection. Both the liver and gall bladder are bound together by strong adhesions to other organs, and can be separated only with the greatest difficulty. The spleen is of normal size and shows local areas of necrosis and infarction. It is intimately fused by strong bands of adhesions to the stomach, pancreas, kidney and diaphragm. The pancreas shows an advanced fatty necrosis of a digestive type. No stones are found in the pancreatic duct. The stomach is of normal size and configuration; it is edematous and markedly hyperemic; it is bound by firm adhesions to its neighboring organs; a plastic exudate covers its surface. One-half inch below the pylorus there is evidence of a duodenorrhaphy. This speculation is supported by the findings of several undigested catgut sutures, this evidently representing the recent closure of a perforating duodenal ulcer. Part of the lesser and greater omentum had been sutured over this perforation. Section of this area reveals a stellate fibrous scar characteristic of an ulcer. It also shows recent healing and no evidence of recent perforation or leakage. Examination of the interior of the duodenum reveals the mucosa, muscularis markedly edematous and hyperemic, and shows two ulcers of equal size; the diameter of each is one-quarter inch, one ulcer situated in the anterior wall two finger-breadths from the pylorus near the lesser curvature, showing evidence of previous perforation which has been closed by strong bands of connective tissue and the large omentum. This ulcer is funnel-shaped; its crater has a rounded, irregular, hyperemic border, and exhibits digestion and necrosis of its mucosal, muscular layers, with only the serosa remaining. The ulcer is of long standing. The second ulcer is on the anterior wall in its lowermost portion, about two and one-half inches away from the pylorus, and shows a pinpoint recent perforation. It is my belief that this perforation is a recent one of about six or seven days duration and the cause of the patient's death."



Photograph of interior of duodenum and stomach in case herein reported.

The duodenum has been opened through the middle of its anterior aspect and shows at *A* the perforated ulcer for which operation had been performed. This ulcer was situated on the antero-superior aspect of the duodenum. At *B* is shown the ulcer on the antero-inferior aspect which perforated six days following the operation on Ulcer *A*.

In the *Journal of the American Medical Association*, July 4, 1931, Dr. Bruce L. Fleming of Philadelphia is the author of an article entitled "Acute Perforation of Duo-

denal Ulcers—Causes of Death and Consideration of Treatment." Therein he gives collected information on 994 patients with 235 deaths, from published reports of thirteen different authors. Detailed reports are given of seventeen similar fatalities occurring in the Jefferson Hospital in a period of twenty-eight years. Causes of all deaths of the entire fourteen groups are as follows: Generalized peritonitis, 55 per cent; pulmonary complications, 13 per cent; shock, 5 per cent; subdiaphragmatic abscess, 5.9 per cent; all other causes, 8.6 per cent.

Leakage from perforation following the surgical closure is reported by him in only two cases in more than one thousand operated upon. He lays particular emphasis on the fact that duodenal perforation usually means peritoneal inoculation with pathogenic bacteria which accounts for the fact that acute diffuse peritonitis is the commonest fatal complication. He gives the average mortality rate as 23.6 per cent.

Moynihan says that "a duodenal ulcer which has been the cause of protracted and recurrent symptoms is always visible from the outside of the intestines, is always palpable and, therefore, always demonstrable. To this statement there are no exceptions. And, in at least 95 per cent of the total number of cases, the ulcer lies within the first portion of the gut, that is, within 1.5 inches of the pylorus. In a certain proportion of cases, between 10 and 20 per cent, the ulcers are multiple. There are sometimes seen on the anterior surface of the duodenum two, three, four or more old white scars along with an ulcer which is clearly of more recent origin and is in more active condition. Old ulcers and new ones are found side by side. When two ulcers are present, they are nearly always close together and he has named them "kissing ulcers." Biggs, in the *New York Medical Journal* of 1890, reported a perforation of two ulcers simultaneously in a woman. Moynihan reports two cases of his own in which two ulcers had simultaneously, or almost simultaneously, perforated.

"When perforation of an ulcer has occurred, the question will arise as to whether the ulcer is of the acute or chronic variety. In twelve consecutive years in the Leed's Infirmary—1910 to 1921—there were sixty-one deaths from perforation of gastric ulcer. In sixty cases the ulcer was of a chronic variety. There were 117 deaths from perforation of a duodenal ulcer. In twelve of these cases there was an acute ulcer. In four of these twelve there was a chronic ulcer also, and in every case it was a chronic ulcer that had perforated, and in eight cases an acute ulcer had perforated." (Moynihan.)

Clark and Franklin, in the *Lancet,* 1901, reported perforation of a duodenal ulcer five days after the closure of a ruptured ulcer of the stomach.

My case impresses me as worthwhile reporting, since simultaneous, or near simultaneous, perforations of two or more peptic ulcers may not be as rare as they are thought to be, and such should be kept in mind in the event of the occurrence of unexpected or unlooked-for abdominal symptoms which, although characteristic of acute perforation, are apt to be considered in the light of being due to complications associated with the operation already performed, such as leakage, et cetera. With the latter, expectant treatment will be indulged in with disastrous results, whereas immediate operation is necessary to save the life of the patient if a second perforation has occurred.

HISTORY OF MEDICAL LICENSURE

Henry E. Sigerist, Baltimore, reviews the history of medical licensure from the dawn of historic times to American medicine. In conclusion he adds a personal remark: He does not believe either in tests or in examinations. They are a necessity, as no other better method has yet been found, but it is well known that certain students have a special ability to pass examinations while otherwise brilliant students quite often show strong inhibitions in examinations. It is also known that actual knowledge alone does not make a good physician, that the character and the whole personality have to be taken into consideration very strongly. In order to judge whether a man is fit to practice medicine or not, one must first of all know him and must have observed him at the bedside of the patient. The longer one has known him the more will one be able to pass judgment on him. The history of medical licensure begins in the Middle Ages. It is a unique feature in the history of medicine, in that the very beginning, the initial solution of the problem, was so perfect that a development of nearly 800 years could not improve it.—(*Journal A. M. A.,* March 30, 1935.)

COMMENTS ON AN EXPERIMENT IN CHILD HEALTH IN MICHIGAN

MERRILL E. CHAMPION, M.D.†
NORTH HARWICH, MASSACHUSETTS

In November, 1929, the Children's Fund of Michigan began a child health demonstration in Menominee County, Michigan, with the writer in charge as director. This work was discontinued in March, 1933, the closing being hastened by existing financial conditions. The demonstration, then, ran for three and one-third years. This paper consists of brief notes on the procedure followed together with comments on the county health problem with special reference to medical relationships. The opinions expressed herein are the writer's own and should not be interpreted as statements of organization policy.

Background of the Demonstration

Menominee County, the southerly tip of the Upper Peninsula, has an area of 1,056 square miles and had, by the census of 1930, a population of 23,652, of which 10,320 were in the city of Menominee. There was no county health officer, but there were the usual township health officers, fourteen in number, and a part-time medical city health officer. The city had a whole-time school nurse, the only public health nurse in the county. An excellent county sanatorium dealt with the tuberculosis problem. Most of the laboratory service came from the State, though the city had its own water purification plant bacteriologist. The city had also an active sanitary inspector.

Set-up of the Demonstration Itself

Staff.—The director, one nurse and one clerk comprised the staff until January, 1930, when a second nurse was added. A third nurse and a dental hygienist came in September, 1930, and a fourth nurse in February, 1931. A sanitary inspector joined the group in April, 1931. At the end of the demonstration the staff consisted of a director, a clerk, four public health nurses, a dental hygienist and a sanitary inspector. During two summers a dentist sent out from headquarters gave operative service to indigent children.

Local Assistance.—Medical and dental advisory committees were appointed by their respective societies at the request of the Demonstration. Nothing was undertaken in their fields without consultation with them. A county advisory committee proved very useful. Township committees gave us contacts with every school district.

Activities.—The following activities were carried on: prenatal, infant, preschool and school public health nursing. Medical examinations of school children, preschoolers (especially those of the "summer round-up age) and infants; these examinations were merely the screening process necessary for referring children with defects to the family physician or dentist for final diagnosis and treatment. Health examinations of students in the county normal school. Dental prophylaxis and hygiene promotion the year round; summer dental operative service for needy children. Sanitary inspection, particularly of rural schools, milk and rural water supplies. Tuberculosis follow-up in coöperation with the county sanatorium and the local health officers. Crippled children supervision in coöperation with the state Crippled Children Commission. Health education, especially of the general public and in the rural schools. Contact with the latter was continuous through the medium of the nurse, dental hygienist, sanitary inspector and medical director. The basic idea always in mind, however, was that effective health education is possible chiefly through the school teacher. Great possibilities were visualized through our approach to the teacher-to-be in the county normal school.

Vital statistics were, of course, a matter of concern to the Demonstration staff but not being an official body it made use of the figures collected by the official agencies and only on special occasions attempted to col-

†Dr. Merrill E. Champion is a graduate of Harvard Medical School, M.D., 1906 and Harvard Technology School of Public Health, C.P.H., 1914. From 1929 to 1933 he was Director, Menominee County Child Health Demonstration, and was formerly Director, Division of Hygiene, Massachusetts Department of Public Health; Instructor in Child Hygiene, Harvard School of Public Health, and Lecturer, Simmons College School of Public Health Nursing. His specialty is Public Health.

lect figures of its own. Communicable disease, for the same reason, was left to the official agencies, though, naturally, every effort was made to assist the local health officers.

Results of Work of the Demonstration

Evaluation of the results of a piece of work of this kind is difficult and apt to be misleading. Space forbids any extended discussion of the principles involved. An appraisal on the basis of the outline used by the American Public Health Association is a useful method up to a certain point. The Demonstration had, on this basis, at the end of the second full year of operation, a score of 577 out of a possible 1000 points. In the absence of a county health department this was approximately all that could be expected for our set-up. Another evaluation plan in great vogue at the present time is based on the number of lives supposed to have been saved and their supposed money value to the community. With this method I have scant sympathy. It is too full of fallacies and what might be termed meticulous inaccuracy.

Owing to the general financial depression, the county was not able to take over any significant portion of the Demonstration's work.

General Comments

In the interests of conciseness only a few outstanding points are chosen for comment and especially ones touching more or less directly on the field of the medical and dental professions.

Medical Examinations.—The Demonstration having no other medically trained member of the staff, the Director did all of the medical examinations that were done. Many school inspections were done by the nurses. During the first year, in order to obtain quick acquaintance with the county and its people, the attempt was made to give a medical examination to as many as possible of the rural school children and to the city pupils in the kindergarten, first and sixth grades. During the second and third years, examinations were done in kindergarten, first, third and sixth grades. This gave us an idea as to the physical status of the child entering school; a chance to check up midway; and the opportunity of sizing up the state in which the school system delivered the child to the junior high school. It was found impossible to continue wholesale medical examinations of the children in the rural schools, though the inspections went on as usual.

The summer round-up of children about to enter school for the first time in the autumn was carried on by the Demonstration in conjunction with the parent-teacher association where one existed; elsewhere, with the teacher alone and the township advisory committee member.

An exceedingly valuable opportunity for making the medical examination of educational value was found in the county normal school. Each student was given a physical examination and advice as to health habits. In addition to this personal service, the examination of the children in the practice school was made the occasion of demonstration and discussion with groups of the normal school students. This was done at both beginning and end of the school year. The good effects of this procedure were manifest in heightened interest in the pupils' health when after graduation these students had schools of their own.

Relationships with Medical and Dental Professions

These were always cordial. This does not mean that every physician and every dentist thought that the work of the Demonstration was necessary or productive of results. In every group there are those whose intensely individualistic clinical preoccupation seems to inhibit tendencies towards social-mindedness. Certain of the men showed keen interest in our work and were its mainstay. Some of the physicians had our nurses visit most of their prenatal patients. The nurses, of course, in their prenatal nursing visits, acted only as the agents of the family physician, seeing the patients he wanted them to see, telling them what he wanted told them and trying to get them to the doctor's office for regular personal oversight. The same general procedure was followed in work with children.

No medical or dental treatment clinics (except the summer dentistry referred to above) were held by the Demonstration. This policy represented a definite departure from the plan that is often followed. It was felt, however, that treatment was distinctly the province of the family physician and dentist.

Discussion of Certain Outstanding Problems

Many public health problems were, of course, encountered; two, only, will be touched upon as representative of relationships between the medical and dental professions on the one hand and that of public health. The two chosen, namely, immunization and dental clinics, are outstanding examples of procedures which often are the source of irritation in public health work. Our experience in Menominee indicates in part a solution of the difficulty.

Immunization.—Everyone will agree that the immunization of all susceptible children against diphtheria and smallpox is a public health job of major importance. The Menominee Demonstration took the stand that the promotional work through public education was a legitimate function of the Demonstration; that the actual giving of the immunization was the function of the private physician; and that the cost should be met as nearly as possible by those responsible for the welfare of the child, namely, the family (except, of course, in the case of the needy). This principle was adhered to throughout. Furthermore, it worked very well.

The procedure followed was this. The Demonstration staff approached the local agencies interested in the welfare of the child with the suggestion that immunization be begun. Most communities had not done much previously; several, however, had. The agencies approached might be parent-teacher associations, school teachers, school directors and, of course, local health officers. The public was interested by talks, newspaper articles and personal contact. The local group which was to take the lead in putting through the project made arrangements with their local physician to do the work and he was always glad to make a special charge in view of the fact that en masse handling of the children made it easier to do a large number in a short time. The families receiving the service paid the fee agreed upon to the agency in charge of the clinic and the money thus collected was turned over to the physician. In one instance, at least, the parent-teacher association made up the deficit caused by the inclusion of those who could not afford the fee charged. In one community the children themselves by odd jobs earned the money for their immunization.

Clinics such as these did far more than render immune to diphtheria a certain number of children; they strengthened the sense of responsibility of the communities and the ties between them and their physicians. Fewer immunizations were done, naturally, than if the Demonstration had carried on free clinics for all comers. On the other hand, the end results from a social point of view were far better in terms of family responsibility. It is a mistake, I think, for health departments and private agencies to continue to offer free immunization to all under the plea of education or demonstration. Most people are so constituted that if they can get a service free from public sources they will not pay for it at the hands of the private physician. The demonstration period—if such were necessary—should now be past so far as immunization is concerned.

Dental Hygiene.—Everyone will agree as to the great need of this. Everyone will agree that operative dentistry, too, is a necessity now and for a long time to come. But the proper method of handling the dental problem is still a moot question. The Menominee Demonstration followed the plan of employing a dental hygienist for educational work and oral prophylaxis together with a dentist for summer operative work amongst the needy. The latter, I think, should not have been necessary, though the question of the taxpayer's money did not, under the circumstances, enter into the case. The depression was its only excuse. The dental society in coöperation with the poor relief agencies should be able to work out a satisfactory plan for giving care to the needy; and in the case of those able to pay a small fee, special office hours and charges should enable the members of the dental society to meet the situation. The undesirable results of free clinics for any but the indigent are easily to be seen by all except those convinced of the value of state medicine. Even the educational phase of the dental problem need not call for extra appropriations if an effort is made to ground the school teacher in the rudiments of dental hygiene—which could easily be done in the normal school.

Summary

This paper comments briefly on a child health demonstration, financed by a private

foundation, which was carried on for three and one-third years in a county of the Upper Peninsula of Michigan. This county had no official county health officer. The demonstration staff consisted of a medical director, four public health nurses, a sanitary inspector, a dental hygienist and a clerk.

It was found that the necessary work of the demonstration could be carried on with the good will of the medical and dental professions.

The work was characterized by certain innovations. For example, no immunizations were done by the staff which merely stimulated public opinion and encouraged clinics carried on by the local practicing physicians and paid for by the recipients of the service. No dental operative work was done except for the needy during the summer. If the depression had not been so acute, this, too, might have been avoided.

Teachers in the rural schools were encouraged to show an interest in every phase of school hygiene. Pupils in the county normal school were taught to look for departures from the normal in the health of their pupils to the end that these defects might be brought to the attention of the family, the family physician and the family dentist.

Prenatal, infant, preschool and school public health nursing was stressed; in each instance the nurse went into the home as the agent of the family physician. As a permanent feature, this work could well be carried by private visiting nurse associations, the absence of which, in Menominee County, was felt to be a distinct handicap to adequate health work.

The conviction was strengthened that a county health officer, assisted by two nurses, a sanitary inspector and a clerk, could do a good piece of work but only if he avoided doing anything which he could get anyone else to do. Immunization, dental treatment, bedside care, maternal and child hygiene, all are visualized as belonging with the family physician or dentist. Instructed teachers, guided by the nurses, can do most of the school work. The care of the indigent is a problem for the poor relief agencies working with the medical and dental societies. Interested groups—parent-teacher associations for example—can help the health officer save the taxpayer money by encouraging the individual family to want more health supervision and to pay for it.

AN APPRECIATION OF TOBIAS G. SMOLLETT, M.D.*

ROGER S. SIDDALL, M.D.†
DETROIT, MICHIGAN

Dr. Tobias Smollett is justly famous in the history of literature as one of the ablest of the mid-eighteenth century writers who did so much to develop the English novel. Yet he was not a fiction writer only, and one may guess that he, himself, was far from aware of his importance in the evolution of the novel. Certainly his main efforts were not in that direction as he devoted most of his time and energy in forcing his very poor plays on reluctant producers; in political and other disputes; and in efforts to increase his income by translations, compilations, editing, and by what came very near to being hack-writing. Medicine obviously ranked far down in the list of Smollett's activities and interests, yet on examination it seems to have been not the least important influence on the man himself and on the permanent value of his work.

Tobias George Smollett (1721-1771) was born in Dumbartonshire, Scotland. His family was one of some distinction, his grandfather being Sir James Smollett, member of Parliament and judge of the Commissary Court. Tobias, though orphaned early, received a good education but little else as his father had married against Sir James' wish. After entering the university at Glasgow, he decided to study medicine and was apprenticed to John Gordon, a prominent surgeon, of whom he says in

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†Dr. Roger S. Siddall is a graduate of Johns Hopkins University School of Medicine, 1920. He is Assistant Surgeon, Department of Obstetrics and Gynecology, Harper Hospital, and Instructor in Obstetrics, College of Medicine, Wayne University.

Humphrey Clinker, "Had he lived in ancient Rome he would have been honored with a statue at the public expense."

The youth was anything but an industrious apprentice, early showing a tendency to letters, though he seems to have won the regard of his master. In 1739, when eighteen years old, and after having served only three years of his apprenticeship, he went to London with his very bad tragedy, *The Regicide.* His play not being accepted, he was forced to seek other employment and shipped as surgeon's mate on H. M. S. Cumberland. He served through the unsuccessful siege of Cartagena in 1741. Following this he was in Jamaica where he married Anne Lascelles, the daughter of a planter.

In 1744, Smollet returned to London to set up in practice, "but attracted attention as a wit rather than a leech." He wrote some poor verse, satires, plays, and in 1748, his first great novel, *Roderick Random.* He drew from his adventures on the Cartagena expedition to such purpose that Scott said everyone who has written about the navy since seems to have copied more from Smollet than from nature. Though now having become a figure in literature, but evidently still intending to combine medicine and authorship, he obtained the M.D. degree from Aberdeen in 1750 and tried practice in Bath. *Peregrine Pickle* was published in 1751.

In 1752, apparently giving up medicine entirely, he returned to London. Here the third novel, *Ferdinand Count Fathom,* soon appeared. Now, unfortunately, in an effort to increase his income to support his expensive way of living, Smollett became a "writer of all work, though he was never a mere hack," but rather a journalist, translator, compiler, and political and miscellany writer. His irritable and pugnacious nature involved him in many quarrels and lawsuits. His partisanship and caustic attacks subjected him to insults, ridicule, fines, and imprisonment at least once. He was reported to have had an unamiable variety of Scotch pride, which with his fiery temper, gave him an unreasonable readiness to take offense or give it. On the other hand, he was affectionate to friends and family, and generous rather than parsimonious. Having again turned his attention to fiction, he wrote *Sir Launcelot Greaves.*

Finally, with the death of his daughter and from the strain of his work and type of life, Smollett became broken in health. He was said to have been a chronic sufferer from asthma. Travel in France and Italy from 1763 to 1766 was followed by some improvement and supplied material for ill-natured satires on foreigners. A trip to Scotland, where he was much honored, and a stay in Bath were followed by a return to London to write *The History and Adventures of an Atom,* a clever but scurrilous satire on the political situation in England which has little permanent value except possibly some historical interest.

In 1769, Smollett's health collapsed completely, and he returned to Italy where he died near Leghorn, in 1771, at the age of fifty. Shortly before his death he wrote *Humphrey Clinker,* certainly his most agreeable novel. His biting and often corrosive wit had become moderated by illness and age while his descriptions and characters remained as real as ever.

Smollett's medical experience has been treated rather lightly by commentators, yet it evidently was an influence which should not be disregarded. That he was not a great medical man may be granted, though the facts that he obtained a university degree and that he collaborated in the revision of William Smellie's system of midwifery should have given him a definite scientific standing. All told, Smollett spent about sixteen years as student and more or less active practitioner. During at least nine of these years his chief support was derived from his professional work, first in the navy and later on land—certainly not an insignificant medical knowledge and experience. It is my impression that this training was a powerful factor in determining Smollett's literary subject-matter and characteristics, at least so far as his fiction is concerned.

In the first place, and fortuitously, of course, medicine led Smollett to the navy and adventurous experiences—an abundant source from which he drew for his first novel, *Roderick Random.* His talent for description was based on accurate powers of observation which could only have been made keener by medical training. The same can be said for his remarkable insight into human nature. His characters are genuine, though caricatured on occasion, and are influenced in a most realistic way by

their ills, mental traits, natural impulses, training and environment. This can be objectionable, no doubt, to those who demand only good of the hero and bad of the villain, thus ignoring a fact of which the physician is constantly reminded—that we are all a combination of good and bad. Not that Smollett, in recognizing evil as a part of human nature, makes it alluring with a sneer at virtue, as is all too frequent in our day. Just the opposite is true. For, with "no sense of the infinite and the eternal, which is the essence of religion" (an accusation which has been brought against medical men of all times), he clearly indicates the hazards of folly and evil: the cruel schoolmaster is given a beating, the adulterer is hurt by the disgrace and sufferings of his son, the spendthrift is thrown into prison, the prostitute becomes destitute and diseased. This is cause and effect morality of materialism without pretense at spirituality, but practical and to be expected of a medical practitioner.

Smollett is characterized by a lack of delicacy, as judged by usual literary standards, with the result that he is little read, even now when frankness is seemingly displacing prudish illusion. Some part of this coarseness (or realism) has been ascribed to medicine, but also it must be remembered that his was a rough age and that much of his early life was spent in the "English navy at its very lowest point," and with first-hand knowledge of the stench, lusts and agonies of such dark parts of London as Beer Lane and Gin Alley. His early fiction reflects the rough vigor, courage, fertility of invention, and zest of rampant youth of the eighteenth century and the hardness and cruelty of the times. *Humphrey Clinker,* the last and most agreeable of the novels, lacks the ferocious vigor and brutality of early works, and the chief character, Matthew Bramble, resembles the old and sick author himself—a good and kind man, alert mentally, but soured with age and illness. Ludicrous comedy is abundant throughout Smollett's novels, but it, too, is apt to be coarse and of the extreme practical joke sort of the period, even to the point of brutality. His wit retained to the last, is keen but may be savage, especially when used in personal attack, as was so frequently the case. By one of his reviewers, Smollett was said to be a stranger to delicacy due to "a natural insensibility improved with a medical education." However, if it be thought that interest is detracted through coarseness, it is also evident that the same feature adds much in faithfulness and historical value to the depiction of eighteenth century life.

For the benefit of accuracy, may we not be fortunate that Smollett wrote with a frankness which has been called coarseness? Perhaps he was actually not so lacking in personnel refinement, for Anderson said he had uncommonly elegant and prepossessing figure and address and unsullied manners. But rather, it may have been, he was faithful to a natural impulse toward actuality "improved with a medical education." That he was essentially honest, in spite of exaggerations due to his fiery temper and pugnacity, is attested by the example of his none too favorable comparison of the north side of the Tweed to the south—he a patriotic Scotchman. Realizing, as few outside the medical profession can, the importance to the individual and the community of the less mentionable hygienic, physiological and pathological aspects of life, how could he show a true picture other than by giving them a place? That he exceeded the bounds of necessity at times is regrettable but is due in no small part to the custom of his age and ought to be tolerated with leniency by any but the most impractically fastidious for the sake of truth. And, are we not all a little the better for some of this medicine?

In Smollet's works there are numerous references to medicine which are of considerable medical and some general interest. He shows the medical student of his day, medical practice in the British Navy and on land, and gives an excellent picture of the prevailing insanitary living conditions. There is even some realization of the possibilities of preventive medicine. His mention of ethical practice is kind but brief, and he devotes much more space to the condemnation of quackery, including advertising and other unethical methods of securing patients, in no uncertain terms. He especially derides that type of practitioner who hides his ignorance behind boastful claims and bombastic pseudo-learning. In this "the age *par excellence* of successful quacks" (Garrison), the associate and intimate of William Hunter, Armstrong, Pitcairn, and William Smellie could justly be indignant

at the claims of medical pretenders whose chief equipment was effrontery and an assumption of the "solemnities of dress and address" of physicians. Medical judgment is shown in his evident disapproval of some accepted practices such as bleeding for almost every ill. His only purely medical paper was in regard to the mineral waters of Bath with "a plan for rendering them more safe, agreeable, and efficacious," but for all his trouble he left the impression that any other water would do as well. Such scientific honesty was naturally of no help to his practice. Later and unflattering descriptions of the discomforts and insanitary conditions at Bath were based on facts, no doubt, even though inspired by partisanship.

In searching through Smollett's works for illustrations of his style, one finds humor the most frequent feature. Actions, situations and characters, almost without exception, have something of the humorous ranging from the merely droll to the ludicrous. The following bit of repartee is a gem for wit, yet at the same time gives a glimpse of the age and also bears a moral. Roderick Random relates that on the stage-coach to Bath there was a boastful and wordy army officer, who soon after leaving London became annoying in his efforts to start conversation. Being unsuccessful, he finally swore he had got into a meeting of Quakers. "I believe so, too," said a shrill voice at my left hand, "for the spirit of folly begins to move." "Out with it then, madam," replied the soldier. "You seem to have no occasion for a midwife," cried the lady. "D—m my blood," exclaimed the other, "a man can't talk to a woman, but she immediately thinks of a midwife." "True, sir," said she, "I long to be delivered." "What! Of a mouse, madam?" said he. "No, sir," said she, "of a fool." "Are you far gone with fool?" said he. "Little more than two miles," said she.

The following somewhat deleted account is an example of what coarse wit Smollett could employ in personal attack. The incident concerns a doctor whom he evidently thought guilty of pretensions of learning, humbuggery, and such unethical practices as soliciting patients and using secret remedies—offenses against which he time and again expressed his resentment. When it is remembered that often his victims could easily be identified, as in this case, one does not wonder that Smollett was fined and imprisoned but rather how, in an age of direct action, he managed to die a natural death. In *Humphrey Clinker,* Jerry Melford relates a conversation between his uncle, Matthew Bramble, and Dr.———— "who is come to ply at the Well for patients." The doctor, overhearing the uncle's expressed disgust for the stink of the mud and slime, assured him he was mistaken. "Then humming thrice, he assumed a most ridiculous solemnity of aspect, and entered into a learned investigation of the nature of stink . . . Then addressing himself to my uncle, 'Sir, (said he) you seem to be of a dropsical habit . . . .' Uncle said, 'But I should be glad to know what makes you think I am of a dropsical habit?' 'Sir, I beg pardon,' replied the doctor, 'I perceive your ankles are swelled, and you seem to have the facies leucophlegmatica. Perhaps, indeed, your disorder may be œdematous, or gouty, or it may be the lues venera. If you have any reason to flatter yourself it is the last, sir, I will undertake to cure you with three small pills, even if the disease should have attained its utmost inveteracy. Sir, it is an arcanum which I have discovered, and prepared with infinite labor. Sir, I have lately cured a woman in Bristol—a common prostitute, sir, who had got all the worst symptoms of the disorder; such as nodi, tophi, and gummata, verrucæ, cristæ Galli, and a serpiginous eruption, or rather a pocky itch all over her body. By the time she had taken the second pill, sir, by Heaven! she was as smooth as my hand, and the third made her as sound and fresh as a new-born infant.' 'Sir! cried my uncle peevishly, 'I have no reason to flatter myself that my disorder comes within the efficacy of your nostrum. But this patient you talk of may not be so sound at bottom as you imagine.' 'I can't possibly be mistaken,' rejoined the philosopher, 'for I have had communication with her three times—I always ascertain my cures in that manner.' At this remark all the ladies retired to another corner of the room, and some of them began to spit." In a righteous cause, Smollet evidently believed in war of destruction.

The following excerpt from *Adventures of an Atom,* though not so scurrilous, is equally devastating: " . . . it was my hap to encounter a learned physician of my ac-

quaintance, who hath read all the books that ever were published in any nation or language; to him I referred for the derivation of the word *atom.* He stroked his chin with solemnity, and hemming three times, 'Greek, sir,' said he, 'is more familiar to me than my native tongue. I have conversed, sir, with Homer and Plato, Hesoid and Theophrastus, Herodotus, Thucidides, Hippocrates, Aretæs, Pindar, and Sophocles, and all the poets and historians of antiquity. Sir, my library cost me two thousand pounds; I have spent as much more in making experiments, and you must know that I have discovered certain chemical specifics, which I would not divulge for fifty times the sum. As for the word *atomos* or *atime,* it signifies a scoundrel, sir, or as it were, sir, a thing of no estimation. It is derived, sir, from *alpha* privativa, and time, honor; hence we call a skeleton an atomy because, sir, the bones are, as it were, dishonored by being stripped of their clothing, and exposed in their nakedness.' I was sorely vexed at this interpretation, and my apprehension of lunacy recurred."

It should be emphasized, as indicated before, that Smollett's indelicacy is not truly vulgar or low, nor is it ever dirt for dirt's sake. On the contrary, it may be called the frankness of the well-informed and educated man (made more accurate and practical by medical knowledge) who writes in a candid age. So true are his descriptions and characters that they have been imitated extensively. No less a novelist than Dickens shows the influence of Smollett. His understanding of human nature was profound. Roderick Random, whose chief redeeming feature was courage, held to inaction when chained to the poop during a sea fight quivered with fear, as would the stoutest of us—but what an opportunity to depict a storybook hero! Again, how true to life is the story (or case history) of Mrs. Trunnion as related in *Peregrine Pickle!* Perhaps it should not be told since it concerns a certain aberration necessitating reference to a common but scarcely mentionable condition of women, which however is so important to all at least once and seems indispensable for the continuation of the race. At any rate, the recently wedded Mrs. Trunnion entering upon various expenses in efforts to exceed the neighbors' standards of living was finally balked at having a coach and six by her hitherto indulgent husband. "She tortured her invention for some new plan, by which she might augment her influence and authority. What her genius refused was supplied by accident; for she had not lived four months in the garrison, when she was seized with frequent qualms and retchings, her breasts began to harden, and her stomach to be remarkably prominent . . ." Her old husband became transported with joy at the prospect of an heir. She got her coach and entered upon other expenses allowed by her husband. She assumed all the symptoms of pregnancy, and her husband became boastful with his companions. The term of her computation having expired, the midwife was called one night, and again two nights later. "The next call was altogether as ineffectual as the former" except for a reduction in her size. A surgeon was then called, who said she had never been with child. Characteristically, his word was ungraciously received, but finally it became evident that he was right. The mortification of husband and wife was intense, yet, for the latter it is probable the coach and six was some consolation.

Smollett's pictures of medicine in the eighteenth century are far from pleasant as a rule and anything but complimentary. True, he pays fitting tribute at times to good medicine and shows his regard for such medical men as Dr. Moore, the father of the hero of Coruna; his former master, Dr. Gordon, and others of ability and honor. But, as pointed out previously, it was Smollett's nature to be reserved in expressing approval, and quick in perceiving and energetic in attacking wrong. Accordingly, it may be thought that his works make too much of the worst side of medical practice in his time. However, information from other sources leads one to believe his accounts are not greatly exaggerated. Garrison says of the eighteenth century that "Quackery, if not universal, was at least, in Thoreau's phrase, 'universally successful.'" Sincerity should force us to admit that even in our so-called enlightened age a Smollett would have no dearth of material.

As a medical student, or apprentice, Roderick Random is pictured as a studious, hard-working but humorous and ramping scapegrace, who becomes involved in amorous adventures in keeping with the times. Stevenson in his time once asked "whither

go all the unpleasant medical students, and whence come all worthy doctors?" Even today one may be asked what becomes of the rowdy medical students, (the question thus implying refinement and rectitude to the remainder of the profession), and can only answer that they become internes. Lewellys Barker made the observation that young medical men abruptly faced with so much human tragedy turn to coarse humor as a release for their feelings and to preserve their sanity. The same reason, no doubt, explains some of their behavior. Due to no fault of his own, Roderick was ousted by his first master, but was promptly taken on by a bitter rival in practice, Dr. Crab, who said of Potion (the first master), "There's a sneaking dog!... I always thought him a fellow without a soul, damn me!—a canting scoundrel, who has crept into his business by his hypocrisy, and kissing the asse of everybody." "Aye, aye," says another, "one might see with half an eye that the rascal has no honesty in him, by his going so regularly to church." A third agreeing said that Potion was never known to be disguised in liquor but once, at a meeting of the godly, where he had distinguished himself in an extempore prayer an hour long. Random, in stating his qualifications, asserted that he had studied some surgery. "Oho! you did?" says Crab. "Gentlemen, here is a complete artist!... studied surgery! what? in books I suppose . . . But let's hear no more of this stuff. Can you bleed and give a clyster, spread a plaster, and prepare a potion?"

After a stormy time in which the master did not always get the best of his apprentice, Crab paid Random's expenses to London in order to blame on him certain of his own irregularities. Failing in efforts to enter on a literary career, Roderick resolved to enter the navy as a surgeon's mate. His appearance before the examining board is noteworthy for attempts by way of sport at the expense of the candidate and for the following argument: Having described the treatment for wounds of the intestine, Roderick was asked if he had ever known a case to recover. "I answered I did not; and was about to tell him I had never seen a wounded intestine; but he stopped me by saying with some precipitation, 'Nor never will. I affirm, that all wounds of the intestines, whether great or small are mortal.' 'Pardon me, brother,' says the fat gentleman, 'there is very good authority . . . ' Here he was interrupted by the other with, 'Sir, excuse me, I despise all authority. Nullius in verba. I stand upon my own bottom . . .' 'But sir, sir,' replied his antagonist, 'the reason of the thing shows . . .' 'A fig for reason,' cried this sufficient member, 'I laugh at reason, give me an ocular demonstration.'" Thereupon the dispute became general, and Roderick was passed without further questioning.

Being made to wait for assignment to a ship and having spent all his money in bribes to crooked officials, Random entered the service of a refugee French apothecary, Mr. Lavement. He, in the words of Roderick, " . . . was the most expert man at a succedaneum of any apothecary in London; so that I have been sometimes amazed to see him, without the least hesitation, make up a physician's prescription, though he had not in his shop one medicine mentioned in it." Again, "Among many nostrums which he possessed, there was one for the venereal disease, that brought him a good deal of money; and this he concealed so artfully from me that I could never learn its composition. But during the eight months I staid in his service, he was so unfortunate in the use of it, that three parts in four of those who took it were fain to confirm the cure by a salivation under the direction of another doctor." Roderick, because of a false accusation, was discharged by Lavement and some time later entering a garret where he had been forced to take lodging saw there a prostitute in a pitiable condition. "She, getting a venereal disease, had accordingly chosen this place of retreat, and put herself into the hands of an advertising doctor, who, having fleeced her of all the money she had, or could procure, left her three days ago in a worse condition than that in which he found her." Roderick undertook and brought about her cure.

Equally distasteful are descriptions of medicine in the English Navy. Random describes the sick-berth or hospital on board his ship: "Here I saw about fifty distempered wretches, suspended in rows, so huddled one upon another, that not more than fourteen inches space was allotted for each with bed and bedding; and deprived of the light of day, as well as fresh air; breathing nothing but a noisome atmosphere of the

morbid steams exhaling from their own excrements and diseased bodies, devoured with vermin hatched in the filth that surrounded them, and destitute of every convenience necessary for people in that helpless condition . . .." The attendants stripped to the waistcoat, crept beneath the hammocks, and forced head and shoulders up between two in order to administer treatment. The ship happened to roll on Roderick's first attempt, and "I laid hold of the first thing that came within my grasp, with such violence that I overturned it, and soon found by the smell that issued upon me, I had not unlocked a box of the most delicious perfume . . ." Pitiless brutality was common in the navy, as for example: The captain coming aboard insisted that there should be no sickness on his ship and ordered the patients back on duty. Many died, and one madman attacked the captain. During the siege of Cartagena an epidemic of fever raged among the forces. The victims became black, and of those attacked three-fourths died. Random was affected, and believing the medicine used did harm he took none and recovered. On another voyage to the tropics Roderick practiced what could be called preventive medicine when he bled all on board as a prophylaxis against fevers which attack Europeans in hot countries.

Smollett had Matthew Bramble give what were evidently his own shrewd opinions concerning certain wells and bathing places. What a merry account he might have given of the recent spectacle of an enthusiastic nation dancing for the benefit of an institution impractically distant from any large number of patients, but famed as the place where a great man bathed—while Nature helped him. In part Bramble said, "I have read all that has been written on the Hot Wells, and what I can collect on the whole, is, that the water contains nothing but a little salt, and calcareous earth, mixed in such inconsiderable proportions, as can have very little, if any effect on the animal economy. This being the case, I think, the man deserves to be fitted with a cap and bells, who for such paltry advantage as this spring affords, sacrifices his precious time, . . .," et cetera.

Descriptions of Bath, then highly fashionable, are said to have been prejudiced, yet a doctor of discrimination could hardly view conditions there with equanimity. Matthew Bramble writes from Bath to his physician that he refused to take the waters at King's Bath. He relates that he entered there " . . . in order to clear the strainer of the skin, for the benefit of a free perspiration; and the first object that saluted my eye, was a child full of scrophulous ulcers . . ., . . . Suppose the matter of these ulcers, floating on the water, comes in contact with my skin, when the pores are all open . . . ," et cetera. He also refused to drink the water, for ". . . it is very far from being clear with me, that the patients in the Pump-room don't swallow the scourings of the bathers . . ., . . . what a delicate beverage is every day quaffed by the drinkers . . . " Smollett evidently had no high opinion of fashionable spas as to comfort, benefit to health, or type of medical practitioners usually found there. It is probable that the same opinion today would receive substantial support among the medical profession.

For the reader of discernment, especially if a medical man, Smollett's works should be much the more interesting for his appreciation of and ability to portray the importance of medical matters. Not only his characters, but also events and the community are more real and understandable for fitting references to medical and public health conditions. For instance, the failure of the Cartagena expedition has been ascribed largely to the incompetency and jealously of the army and naval commanders, yet enfeeblement of the forces by fevers was clearly an important factor in the abandonment of the expedition after some initial success.

In *Humphrey Clinker* we see a vividly authentic picture of city life. The youthful Jerry Melford and his sister enthusiastically describe the diversions and the cultural advantages of London, while the ailing Matthew Bramble finds much about which to grumble. He comments on the rapid growth of the city now with a sixth of the Kingdom's population and more flocking in for an easy life . . . "Great numbers of these being disappointed in their expectations, become thieves and sharpers . . . " "The diversions of the times are not ill suited to the genius of this incongruous monster, called the *public*. Give it noise, confusion, glare and glitter; it has no idea of elegance and propriety, . . . " And, no wonder infectious diseases and early death were the order of the day for, "If I would drink water, I

must quaff the maukish contents of an open acqueduct, exposed to all manner of defilement; or swallow that which comes from the river Thames, impregnated with all the filth of London and Westminster—Human excrement is the least offensive part . . . ," et cetera. As for food: "It was but yesterday that I saw a dirty barrow-bunter in the street, cleaning her dusty fruit with her own spittle . . . ." "Now all these enormities might be remedied with a very little attention to the article of police, or civil regulation, but the wise patriots of London have taken it into their heads, that all regulation is inconsistent with liberty . . . " Old Matthew said that the food in Edinburgh was good, but described how the people living in two to eight story buildings, with a family to each floor, at a certain time at night discharged the "impurities" of the day from their windows. The scavengers would leave behind enough to offend the eyes and other organs. "The inhabitants seem insensible to these impressions, and are apt to imagine the disgust that we avow is little better than affectation . . . " Winifred Jenkins, the maid, further explains the discomforts and inconveniences in the use of the inadequate equipment, and referring to the actual disposal of the "impurities" she says, " . . . and the maids call *gardy loo* to the passengers, which signifies *Lord have mercy upon you!*"

Smollett also shows much of the country life in England, Wales, and the Scottish Highlands. And, in addition to those already cited, there are many other references to matters of medical interest. He praises golf as healthful exercise; he describes the almost unbelievable amounts of whiskey consumed by the Highlanders, and the use of whiskey in pediatrics; reference is made to the laws against the sale of quack remedies; etc., and thereby the vivid depiction of people and the eighteenth century is made more complete. It must be admitted that my estimate of Dr. Smollett may seem to differ considerably from that given by reviewers and critics, yet "I affirm . . . " "Pardon me, brother," says the fat gentleman, "there is very good authority . . . " "Sir, excuse me, I despise all authority. Nullius in verba. I stand upon my own bottom," and, "A fig for reason."

OUR INTERESTING "ORIENT"*

WILLIAM J. STAPLETON, JR., M.D.
DETROIT, MICHIGAN

Our plans last summer were uncertain as we did not get away until late in August. We started East with the idea of taking a place out on Cape Cod but by the time we reached New York the weather had turned chilly. Recalling an article in the *National Geographic Magazine*, June, 1934, about the National Park recently made out of the Great Smoky Mountains, we decided to go South.

Our trip East was through Canada to Buffalo, across New York State, stopping on our way at that delightful college town, Williamstown. Here we took the Mohawk Trail, lunching at the Sweetheart Inn on delicious waffles and bacon. A lazy Sunday afternoon drive through the Berkshires into northern Connecticut brought us to Norfolk, where we stopped to pay our respects to that great man of medicine, Doctor William Welch. The house in which he was born is marked with a bronze tablet, and not very far away he lies buried in the village graveyard among his many doctor ancestors. Dr. Harvey Cushing has written an article, "The Doctors Welch of Norfolk" which is a beautiful tribute from one great man to another.

New York has much to offer the physician. The New York Academy of Medicine provides visiting physicians with all necessary information regarding hospitals, clinics, and various society meetings.

One may recall that for many years there stood in Bryant Park a statue of that great American gynecologist, Dr. James Marion Sims. I looked in vain for it and upon inquiry found that it had been moved to Cen-

*Under the general heading "The Doctor's Log" Dr. Stapleton has contributed yearly his travel experiences in this country and in Europe. Dr. Stapleton's medical interests are always present in his wonderings whether at home or abroad. The demand of space for the scientific contributions has precluded any earlier publication of this article.—EDITOR.

tral Park and recently rededicated. The statue was unveiled by Dr. Alice Gregory, a grand-daughter of Dr. Sims, who founded the first Women's Hospital in New York in 1855. Dr. Ward in his dedication remarks said Dr. Marion Sims was the pioneer in modern gynecology. "To Sims," he said, "belongs the honor of arousing the profession and the laity to the needs of suffering women of his day, and by his genius and skill making possible the cure of the numerous diseases and injuries that are peculiar to the sex, so that he will have an enduring monument in the gratitude of women to his talent, his genius and his philanthropy."

Leaving New York we drove through New Jersey into Pennsylvania, stopping at Bethlehem to see the old Moravian part of the town. One usually thinks of Bethlehem as the home of the steel industry, which it is; but tucked away in the old part of the town are the fine old buildings dating back to 1742. The old Church, the Seminary buildings, the Widows' Home and other buildings belonging to the Moravian Community are standing. The story of the Moravian from their earliest days in Europe to their settling in Pennsylvania is an absorbing one. It is the old story of the quest for freedom and religious tolerance.

From Bethlehem we drove along the fine roads of Pennsylvania to Carlisle, once the home of the famous Indian School noted for its football team. Now it is a training school for the Medical Department of the United States Army. During the Civil war, Carlisle was a busy center. The guard house built by Hessian prisoners during the American Revolution is still standing. In the cemetery near is a monument to Molly Pitcher, the heroic woman soldier of the Revolution.

Night found us at Winchester in the beautiful Shenandoah Valley, famous for its apples. Here George Washington began his career as warrior and statesman; here were born the forbears of Abraham Lincoln. From Winchester Sam Houston went to found the state of Tennessee and the Republic of Texas. At this place McCormick invented the reaper. From this town Sheridan galloped his way to fame, and Stonewall Jackson fought his way to immortality. Here also one finds the great natural wonders, the Luray Caverns at Luray and the Shenandoah Caverns near New Market. The Blue Ridge Mountains reach their climax in beauty.

We are in the South, for on the soldiers' monument in the Square, one reads "To All The Confederate Soldiers Who Fell In The War." Winchester has many historic shrines; Sheridan's Headquarters, from which he made his well known ride to the battle field of Cedar Creek. Of more recent interest is the birthplace of Admiral Richard Byrd. In the Protestant Episcopal Church is the tomb of Lord Fairfax who died in 1781, to whom Washington served as Surveyor.

Virginia has marked all her historical spots and the state has published a book about these markers. Thus with little effort one can locate any place in which he may be interested. Other states might follow this custom to advantage.

At Charlotteville is the University of Virginia, founded by Thomas Jefferson and directed by him, "that a free public school system is necessary to the well-being of any free people." With James Madison and James Monroe the University was guided during its early years. We were greatly impressed with this University in the foothills of the Blue Ridge, its beautiful grounds, red brick buildings with white wooden columns, cloisters with the flavor of years, where Edgar Allen Poe, Woodrow Wilson and other famous men were educated. From Charlotteville we drove to Monticello, the home of Thomas Jefferson. A rough road leads to the top of the mountain from which, however, one gets a magnificent view. The house and grounds are in excellent condition and give one a very vivid idea of how Jefferson lived. Near by is a fine marble shaft in the family graveyard marking his resting place. A short ride took us to Ash Lawn, the home of President James Monroe, whose name is remembered among other things from the Monroe Doctrine. This small home was designed by Jefferson and built under his supervision during Monroe's term as ambassador to England. It is the opposite of the great estate of Monticello, but the grounds are beautiful.

Night found us in Lexington with the town filled with Labor Day tourists. The next morning we visited the graveyard where Stonewall Jackson is buried. Our visit included also the chapel of the Washington and Lee University to see the Tomb

of General Robert E. Lee. The grounds and buildings are very fine. Here again prevails the colonial type of architecture but very different from the University of Virginia.

From Bryson City we drove right into the "Smokies," which run the entire length of the National Park in Tennessee and North Carolina, excellent roads, some under construction and regions where man has not penetrated. The name "Smokies" is best explained by the late Horace Kephart. "Nearly always there hovers over the high tops and around them a tenuous mist, a dreamy blue haze, like that of Indian summer, or deeper. Often it grows so dense as almost to shut out the distant view as smoke does that has spread from a far off forest fire."

A rough road took us through the reservation of the Cherokee Indians which is in the western part of North Carolina. For four centuries the Cherokees have managed to survive against war and injury inflicted upon them by the white man. They have been imposed upon since DeSoto in 1540 came through the Nantahala Gorge on his gold quest. Twenty-seven "treaties" with the whites were relentlessly broken. The Indians were pushed steadily backward from their coastal haunts until finally they were dispossessed of their land without recompense. Refusing to leave their native hills, a small band remained as outlaws in the place that was later bought for them by a friendly white man. Finally the State recognized them in 1899 by incorporating them under the title "The Eastern Band of Cherokee Indians." Today the Cherokees are said to be better governed than any other Indian tribe in the United States.

Beyond the Cherokee land we began to climb, back and forth, the view growing finer and finer and the road rougher and rougher until we ran into construction work at the top. After about ten miles of this, mostly on the Tennessee side, we drove down to the town of Gatlingburg. The scenery is magnificent and when the road is finished this will be one of the finest mountain drives in America.

Early afternoon brought us into Knoxville and from there we drove to visit the Norris Dam, twenty-five miles away. The dam is being built under the Tennessee Valley Authority on the Clinch River, nearly eighty miles above the point where that tributary joins the Tennessee River. The dam will be 253 feet high, 210 feet thick at the base, 1,800 feet long at the crest. The waters impounded will form an artificial lake of 3,600,00 acres. The estimated cost is thirty-four million dollars. Norris Dam is primarily a storage dam which will store a year's rainfall from several thousand square miles. Two 60,000 horsepower generating units will be installed. This project is part of President Roosevelt's "planned future." It is intended to have rates that will encourage people to use more electricity and by so doing realize the leisure and comfort that is supposed to be part of life. There is much criticism of the action of the Government in the fact that it will be in direct competition to private utility corporations. Near by is the model town of Norris, a permanent community of economically built but attractive small houses, electrically equipped, constructed to house the workers on the Norris Dam. It is certainly a most interesting sight to see this first step in the attempt to socialize industry.

On our way again through the tobacco and the blue grass country of Kentucky stopping at Harrogate to visit the Lincoln Memorial University. This school is devoted to the education of the young folks of the surrounding country. Harrogate is named from the famous Spa in England. Some forty years ago a group of wealthy English promoters were travelling around the country and seeing this place in Cumberland Gap they named it Harrogate, proceeded to build a huge hotel, lay out walks and gardens with plants and rare old trees sent over from England. An artificial spring was built and filled with plenty of iron and water. When all was completed a grand opening was held with great pomp and ceremony. The Duke and Duchess of Westmoreland and others of the English nobility came over, famous actors, opera singers, such as Lily Langtry, came by invitation but the fake Spa was doomed to failure and the speculators lost all their money. The establishment of the Lincoln Memorial University is in a large measure due to that brilliant young officer General Howard. He was called to Washington in the Autumn of 1863 and told President Lincoln of the heroic service of the southern mountaineers. "I shall never forget the look of that wonderful man as he listened to me," said How-

ard. "Those were his people and his great heart went out to them. He laid his hand on my shoulder and said to me, 'Howard, if you come out of this horror and misery alive, and I hope you may, I want you to do something for those people who have been shut from the world all these years. If I live I will do all I can to aid you and betwen us we may do them the justice they deserve.'" "That time never came," General Howard continued, "but at the close of the war I decided that my one aim in life would be to carry out the President's wish, and I watched my chance. It did not come for many years, but when it did come I put my soul into the work and now we have Lincoln Memorial University just where Mr. Lincoln would have wanted it."

These southern highlanders or mountain people as they are usually called are a race of the purest American stock. They are overwhelmingly white, 90 per cent being American born, 70 per cent of which are rural and unable to keep pace with our modern civilization. Eight presidents of the United States were born in these highlands, including Thomas Jefferson, Andrew Jackson, William Harrison, Zachary Taylor, James Polk, Abraham Lincoln, Andrew Johnson, and Woodrow Wilson. Contributing to the poverty of these people is the lack of good roads which, however, are now slowly being improved. Railroads are prohibitive because of the cost of building mountain trunk lines. The highlands are rough and broken hillsides, so that much of the cultivation has to be done by hand, at great expense of time and labor. What produce is raised is mostly used by the family. Many thousands of families still live in the most primitive cabins with the outside chimney where the family cooking is done. Hand spinning, weaving of wool, cotton, and flax is common in every family. As a result of these conditions the schooling of the children is badly neglected.

Leaving Harrogate, we journeyed through the historic Cumberland Gap which is situated at a point where the states of Virginia, Tennessee and Kentucky converge. Through this Gap came the early pioneers. Dr. Walker, Boone, Todd, Breckinridge, Clay, Davis, Lincoln, Hay, and LaFollette on their way to the Northwest. In 1570, Dr. Thomas Walker, an English explorer of Virginia, with seven companions were the first white men to pass through the Gap which they named in honor of the Duke of Cumberland. In 1775 Daniel Boone came through a trail which is known today as Boone's Path and is now a part of Dixie Highway running from Michigan to Florida. During the Civil War, Cumberland Gap, the great pathway between North and South, was occupied by both Confederate and Union soldiers. It is interesting to note how the counties and cities of this region are named from well known places in England like Norfolk, Kent, Duke, Surry, Buckingham, Chesterfield and others.

Our next stop was Berea, another remarkable institution of the South. Founded in 1855 "To promote the Cause of Christ" by providing opportunity for education for young people of the Southern Mountains. From Berea we continued along the Daniel Boone Trail to Danville, Kentucky, the home of the great American doctor Ephriam McDowell, the first man to do an ovariotomy. It is in the negro section of the town with a small dingy barber shop on part of the premises. A bronze plaque marks the house with this inscription—

This House
Was the home and office of Dr. Ephriam McDowell
1771-1830
Whose Original Contribution to Surgery won
Honorable Recognition Throughout the Civilized World
Erected by St. Asoph and John Rochester Chapters
Daughters of the American Revolution
"To Commemorate His Services to Womanhood"
1923

In the cemetery not far away is a shaft over his grave erected by the Kentucky State Medical Society, "To The Father of Ovariotomy." It is most unfortunate that the people who own the property on which the old house stands refuse to sell it to the Medical Society. Recently I received a letter in which it stated that the old man who owned the property is dead and it is hoped the son will be more amiable to the purchase of this shrine of American Medicine.

A short run from Danville took us to Shakertown where are standing a few old houses, all that is left of the communistic settlement of the "United Society of Believers," commonly known as Shakers. They date back to 1805. They believed in the celibate life, separation from the rest of the world, the second coming of Christ, in Ann Lee, their founder (born in England in

1736) the gift of prophecy and healing, the abolition of slavery, the equality of men and women in the governing of their affairs and in individual and international peace. They receive their name from the fact that at revival services sometimes as many as 5,000 people would fall shaking in a trance, convicted of their sins by the powerful exhortation of perhaps only a boy or girl preacher. So they prospered for a little as their fine buildings show, houses that were built with two main stairways, one for men and one for women.

Leaving Shakertown we drove to Harrodsburg where we saw the replica of the quaint old Fort and the original log cabin in which Thomas Lincoln and Nancy Hanks were married. On our way to Bards town, our next stop, we passed the first log house built in Kentucky, by Dr. Walker, the explorer, who was the first white man to pass through the Cumberland Gap. Just outside of Bardstown we visited "My Old Kentucky Home" as the old Civil War estate of Federal Hill is called. That name was popularly attached to it, because it is the house where Stephen Collins Foster visited his relatives and where he composed and wrote in 1852 the old song. The house is completely furnished as in the period when Foster visited there and they still have the desk he used.

From Bardstown we took a little drive out thirty miles to Hodgenville where we visited the birthplace of Abraham Lincoln, now a National Shrine. A magnificant marble building covers the log cabin where the great emancipator was born. The walls are carved with the famous sayings of Lincoln; the grounds are spacious and well kept, a beautiful tribute to that man among men. Another little trip out from Bardstown was to Gethsemane and the Trappist Monastery, unique in the United States, they glorify poverty.

Fulton is presumed to have invented the first steam-propelled boat but the visit to Bardstown proved otherwise. Little Johnny Fitch, the Connecticut Yankee, was the real inventor of the steamboat. His boat was in operation in 1785, twenty-two years before Robert Fulton's Clermont chugged up the Hudson. The first boat, which was forty-five feet long, ran from Burlington, New Jersey to Philadelphia. He later built a better one which made regular trips between Burlington, Philadelphia, Cester and Wilmington. Fitch made his own, while Fulton had his made in England. He wanted to build a boat that would cross the ocean, but in spite of what he had done he was laughed down and left without support. His life was a succession of disappointments. He went to France for financial aid, but the French Revolution was on and thus another disappointment. Finally he went to Bardstown where he had tracts of land and here he made a deal with a local tavern keeper that for 150 acres of land he would furnish him with bed and board and a pint of whiskey a day for the rest of his life. Then one day he said "I'm not getting off this earth fast enough," and he took twelve opium pills and went to his rest. He was buried in Bardstown in 1788. Now, one hundred and twenty-eight years afterwards, the United States Congress voted $15,000 to remove his dust from the public burial ground and place it in the village square.

THE BEST PAID MAN IN THE WORLD

The physician is the best paid man in the world. He is required to have an education which will be a benefit and a comfort to him all the days of his life. He wins a degree and he attains the honorable title of doctor. He learns to know more intimately his fellow man than any one else can know his fellow. He gets praise for many things that he does not deserve and providence and disease are blamed for his mistakes. He wins the gratitude of those he serves. His charity work is invaluable to his experience. If he is reasonably conscientious and works reasonably hard he builds a practice that will insure him a good house, office and automobile and enable him to rear and educate a family and to stand the losses of the inevitably foolish investments he makes. If he has a taste for invention there are innumerable unknown instruments and improvements awaiting him. If he wishes to discover, the laboratory is ready for him. If he likes research the facilities and libraries are available. If he craves adventure insidious dangers lurk around him and there are ever pioneer fields to enter. In his endeavors his government, his community and his fellow physicians stand ready to aid him. He is an advocate without a jury, a judge without a court, a minister without a surplice, a business man without guile, a farmer whose soil is the human body and whose crops are human health and happiness and he is a laborer without a boss. The physician is the best paid man in the world.—Beverley R. Tucker, M.D., in *Virginia Med. Monthly*, April, 1934.

PAROXYSMAL HEMOGLOBINURIA
Case Report*

LOUIS JAFFE, M.D.†
NEW YORK CITY

The syndrome known as paroxysmal hemoglobinuria has been recognized as an entity for some seventy years. However, it was not until the classical work of Donath and Landsteiner was published (1904) that the underlying serologic factors, as we know them today, were established. The disease is rare, somewhat less than three hundred cases having been reported, and is sufficiently unique in its properties to merit this report. The following case demonstrates the essential characteristics:

Mr. J. S., a white man, forty-seven years old, by occupation a deputy sheriff, was first seen in the Out-Patient Department on August 2, 1933. The onset of the present illness occurred the preceding fall while he was fishing. Following exposure to moderate cold for two and one half hours, he gradually developed a generalized headache associated with malaise and aching pains in the legs and back. This was soon followed by a severe, shaking chill lasting half an hour, and then by a febrile reaction of short duration. He was conscious of marked weakness and slight drowsiness and upon arriving home was considerably alarmed by the appearance of his urine which was dark red in color. Further specimens were normal in appearance. Four weeks later he again allowed himself to become exposed to cold, a similar paroxysm ensued, characterized at the onset by headaches, general malaise and pain in the legs, loins and back, followed by a chill, fever and the passage of dark colored urine. There was a total of six attacks during the winter, the patient being relatively symptom-free during the intervals with the exception of a gradually increasing dyspnœa and weakness. The attacks ceased with the advent of summer.

The family history was negative. The past history reveals the usual childhood diseases, also gonorrhea at the age of sixteen. The patient denies having had malaria nor does he relate any evidence of a primary or secondary syphilis. He is married and has four healthy, living children; his wife has had one miscarriage.

Physical examination revealed an adult white male, well developed and nourished. The skin exhibited a moderate pallor and a slight icteric tint. Scalp was clear. The ears, nose, mouth and throat were negative. The pupils reacted sluggishly to light and accommodation. There was mild bilateral lymphadenopathy of the anterior cervical chain. The lungs and heart were negative. Blood pressure 138/92. The abdomen, extremities and reflexes were normal. Blood Count: Red blood cells 2,980,000; hemoglobin, 72 per cent; white blood cells, 12,200; polymorphonuclears, 62; lymphocytes, 23; mononuclears, 7; eosinophils, 7; basophils, 1. Urinalysis: Specific gravity, 1.012; reaction, neutral; albumin, negative; sugar, negative; acetone, negative; sediment, negative.

Blood Sugar, .093 per cent. N. C. N., 31.5 mgs. Fragility test, .40-.30 (complete hemolysis). Blood calcium, 10.1 mgs. Blood phosphorus, 3.2. Cholesterol, .210 per cent. Wassermann, ++++.

A diagnosis of paroxysmal hemoglobinuria and secondary anemia was made. A specimen of the dark Burgundy red urine was later obtained.

Specific gravity, 1.022; reaction, alkali albumin, ++; sugar, negative; acetone, negative; sediment—no red blood cells or white blood cells. A heavy, dark amorphous sediment was noted. The presence of methemoglobin and hematin was confirmed spectroscopically. The patient was put on a regime of ferric ammonium citrate 25 per cent and later, intensive anti-luetic therapy. In spite of two paroxysms while under observation and treatment a blood count taken January 15, 1934, showed hemoglobin, 75 per cent; red blood cells, 3,950,000. Dyspnœa and ease of fatigue had largely disappeared. The Wassermann reaction is still ++++ at the time of the present writing.

For the interested reader G. M. MacKenzie has presented a comprehensive review of the work done on this disease. Essentially, paroxysmal hemoglobinuria is a manifestation of late congenital and acquired syphilis characterized by intravascular hemolysis upon exposure to low temperature. It rarely occurs before the fifth year in congenital cases, and is most common in the fourth and fifth decades of the acquired type. Symptoms, beginning from a few minutes to several hours after exposure are characterized by chilliness, malaise, aching pains in the loins, legs and abdomen, and rarely dizziness and visual disturbances. Vasomotor phenomena often indistinguishable from Raynaud's disease are not uncommon at this stage; urticarial wheals and erythematous blotches have also frequently been reported. Our patient exhibited none of the vasomotor phenomena.

The next stage is initialed by the characteristic chill and fever, the duration and severity of which are extremely variable. Cases have been reported with either or both absent. At least the first specimen passed unusally shows the typical Burgundy red, or dark brown urine containing methemoglobin, oxyhemoglobin and occasionally hematin. Erythrocytes are either few in number or absent. The post-paroxysmal

*From the Out-Patient Department, Harper Hospital, Detroit.

†Dr. Jaffe is a graduate of the University of Michigan Medical School, 1932. He was interne two years at Harper Hospital, the second in internal medicine. He is at present resident in pathology at New York Post-Graduate Medical School and Hospital.

symptoms consist merely of lassitude and weakness, associated with occasional icterus. Intervals are symptom free unless there are frequent paroxysms, in which case a secondary anemia similar to that found in repeated hemorrhage and a rapidly disappearing icterus due to formation of bile pigments from non-excreted hemoglobin, are the only manifestations of the syndrome.

Diagnosis is easily made, the only other really differential factor being the hemoglobinuria of chronic malaria. Perhaps the most dramatic and pathognomonic clinical test is obtained by immersing the hands and feet in ice cold water, whereupon a typical paroxysm occurs (Rosenbach test). The Ehrlich test is carried out by ligating one finger of the patient, immersing it in ice water for several minutes, warming it, then examining the blood below the ligature for hemolysis.

The only efficacious therapy is antiluetic, although clinical improvement may not be evident for some time. Recently Ito and other workers have claimed symptomatic relief following a course of innoculation with the organism of rat-bite fever.

Fortunately, a counterpart of the clinical pathology can be demonstrated *in vitro*. At the suggestion of Dr. P. F. Morse, the confirmatory procedures were done.

1. The patient's oxalated blood was separated into its components, erythrocytes and plasma. The latter and a suspension of erythrocytes were chilled at 5° C. for half an hour and then placed in the incubator for ten minutes. Hemolysis occurred whereas oxalated normal blood under identical conditions did not hemolyze.

2. The patient's washed red blood cells and a plasma from a normal individual were similarly chilled and incubated. There was no hemolysis. With the addition of fresh guinea pig complement there was still no hemolysis.

3. The patient's plasma and erythrocytes of a normal individual when together under similar conditions induced complete hemolysis of the latter.

4. Hemolytic serum was inactivated at 56° for twenty minutes. Erythrocytes were then added and the mixture chilled and incubated under the usual conditions. There was no hemolysis. Addition of complement produced partial hemolysis.

5. The patient's erythrocytes were chilled and then incubated. Addition of inactivated hemolytic serum and later of fresh guinea pig complement produced no hemolysis.

6. Hemolytic serum was chilled and incubated. Addition of erythrocytes produced no effect.

7. Both serum and erythrocytes were chilled and incubated separately and then mixed. There was no hemolysis.

8. Hemolytic serum and a heavy suspension of red blood cells were chilled at 5° C. for ten minutes. The serum was then removed and added to other erythrocytes. This mixture was chilled and incubated without hemolysis occurring. Addition of fresh guinea pig complement still failed to produce hemolysis.

The conclusions drawn from the above are as follows:

1. The hemolysis, which is both an autohemolysin and an iso-hemolysin is present in the serum, not in the erythrocytes.

2. Complement is necessary for the reaction to occur although it does not need to be present during the chilling.

3. Union of the hemolysin and erythrocyte occurs only when both are present at low temperature. The fact that this amboceptor becomes activated only at low temperature in contrast to others of similar nature is perhaps the most distinctive feature of the disease.

4. The hemolysin is evidently used up as a quantitative factor. This may play a rôle in explaining failure to obtain the Donath and Landsteiner phenomenon in our patient immediately after a paroxysm even when complement was added. The preponderance of evidence, especially that of Kumagai and Namba is, however, that there is little fluctuation of the hemolysin titer *in vivo* before and after a paroxysm and that it is probably the complement which is low.

Summary

1. A typical case of paroxysmal hemoglobinuria was demonstrated in an individual showing none of the clinical stigmata of syphilis.

2. The serologic properties of the disease were demonstrated.

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MEDICAL INSURANCE*

G. C. STEWART, M.D.†
HANCOCK, MICHIGAN

The report of the Committee on the Costs of Medical Care has provoked a great deal of discussion as to ways and means of supplying medical care to those of our population who do not receive incomes sufficient to provide a proper standard of living. Medical care for those who are found to be in the lowest of the income groups may be considered under two headings: state medicine is one form and insurance medicine another.

State medicine, to my understanding, means that the state through taxation would create large centers or clinics where physicians on salary supply free medical service to all applying for treatment. As a plan of this kind would be almost impossible of operation and in fact never has been tried out anywhere, with the possible exception of Russia, we shall not take time to discuss it.

Medical insurance is a plan whereby those earning less than a stipulated amount are required to pay a certain premium in weekly or monthly payments which, supplemented with equal payments by the employer, creates funds to enable the employe to receive medical treatment when required.

There are two conflicting theories as to how we are to provide medical care for those who are engaged in manual labor or whose incomes are on the lower levels. The labor unions have always maintained that the worker should receive a wage sufficient to cover all expenditures to assure a decent standard of living, and this includes the cost of medical care. On the other hand there are social workers who say that the workman, no matter how much he earned, would be unprepared to finance the cost of medical service, not to mention the loss of wages from unemployment.

In the United States the physician is the willing servant of the sick, poorly paid, but giving the highest quality of service of which he is capable and the highest quality of medical service given to any people anywhere. Any citizen of the United States who is sufficiently educated may be licensed to attempt the prevention and cure of sickness. These licentiates are twenty-seven or more years old. They must have met educational requirements for twenty-two years, the last seven or eight passed within colleges. As a class, the educational equipment of physicians involves more time, money, and effort than is required of any other profesisonal group.

There are 123,000,000 residents of the United States, served by 150,000 physicians, a ratio of approximately one to eight hundred. An average of 2,500 physicians die every year, their places being taken by more than 5,000 licentiates. The supply now is adequate and rapidly is exceeding any possible demand.

The distribution of medical service to the entire population admittedly is faulty, but steadily diminishing morbidity and mortality rates in the United States justify the opinion that medical service to all of the people is improving in quantity and quality. It is also true perhaps that more people are adequately fed despite widespread financial distress, possibly because of interested public opinion. It is reported that the babies at the Sloane Maternity Hospital weighed at birth an average of four ounces more in 1933 than in the previous year.

Urban concentration of physicians is not proportionately greater than is prevailing in any other profession, although comparatively few are sensible of the advantages of rural life, with its proportionately greater material reward. Improving road communications are lessening the problems of rural service.

Wherever there are hospitals, the lower income groups, which include individuals whose incomes fall below $1,200, or families with incomes below $1,800, are provided with dispensary, or hospital, service of high quality. Hospitals are needed in rural regions and the provision of such facilities always will present difficulties.

However willing the physician, the public is notably unwilling to submit to preventive

*Read before the February, 1935, meeting of the Houghton County Medical Society.
†President, Houghton County Medical Society.

immunization against such diseases as diphtheria, smallpox, or typhoid fever, and resents interference with personal inclinations by health officials, or by private physicians. Campaigns of education in the prevention of such a tragic destroyer as diphtheria have had extraordinary success while the excitement of publicity is maintained at high temperature, but statistical curves show immediate failure as soon as efforts of the crusaders are relaxed. There are thousands of people suffering from malaria and from smallpox in the United States, all preventable, but persistent because of failure of public coöperation.

Under the egis of philanthropy, sociologists are propagandizing remedies for these defects, and also, prosperity for the underpaid physician, by compelling all the people in the lower income classes to submit to grouping into panels for which medical service shall be provided at low cost, under government control. Schemes are so planned that everyone will have a physician, regardless of his personal desire.

Regardless of whether they have medical service or not, there is no evidence in support of the claim that there is increasing sickness and death among rural people who have low incomes, nor does a comparison with the reports of the Health Department of the City of New York, which includes the largest group of poor people, substantiate such a claim.

It is claimed that the distribution of medical service is an economic problem, but the economic factor goes deeper than the question of medical care. Into the cost of productive labor must go the cost of keeping the laborer productive. The profit is made on labor, and, consequently, labor must be kept cheap enough so that employers may make enough profit from the laborer.

Budgeting for sickness is ideal. Budgeting for anything beyond rent, heat, light and food is unreal. Budgeting through individual, or family, insurance, and payment by an insurance company to reimburse for loss of time from sickness would be wise foresight, but compulsory regimentation immediately involves a setup of administrative jobs which would still further overload the taxpayer.

The propagandists say that there must be "Executives to set up and administer the scheme . . . Professional agencies to care for the problems of education and investigation, and to administer the professional service," and a "judicial agency combining lay and professional members to deal with complaints and grievances," erecting bureau upon bureau.

In forty-four States, compulsory compensation insurance laws involve similar expensive administrative machinery, which rarely is satisfactory and largely riddled with scandalous racketeering. In small towns the schemes are sometimes meritoriously operated, but in every city in the country they are dominated by malignant influences.

Compulsory health insurance to replace contract practice might be a step forward, but, in the United States, where most of the physicians are "on their own," compulsory health insurance would be a backward step from independent service, however poorly paid, to dead levels of governmental servitude. It is said in this connection that "neither their hands, nor their instruments, need be tied." When workmen's compensation laws cease to fetter the physicians' hands, then it may become timely to attempt another experiment evolved from current painful experiences.

Compulsory health insurance abroad involves regimentation. It has not improved the public health. It can not provide reasonable compensation because of the inevitable administrative costs. Political tendencies are unavoidable. "The cohesive forces of public plunder," quoting Grover Cleveland, "either would raise the cost far beyond the proposed $35.00 a year for each person, or lower the quality of medical care far below the standards prevailing, or expected among the American people."

The scientific exhibit of the American Medical Association at Cleveland was an amazing demonstration of the accomplishments of American physicians. Study of the individual by the individual has carried medicine to so high a place in public service that it may readily be believed that there is little need for mass medicine.

I believe that most of the citizens of this nation would resent any system which would deprive them of the right of free choice of a physician. Certain it is that present experience with medical care under governmental regulation has proved anything but a boon to the private practitioner; it is unlikely that a more complete extension of the

plan would prove satisfactory to even a small minority of physicians.

The tentative plan of "state medicine" as recently outlined by the Milbank Memorial Fund proposes that the American population, including 62 per cent which the fund's spokesman says receive no medical, dental or eye care of any kind, shall be coerced into supporting financially and yielding physically to the domination of a group of state-employed men. It is difficult to understand why every citizen . . . should be compelled to comply with such a regulation. Incidentally, it is strangely foreign to the legend of the family doctor, who worked under the motto, "To each according to his need; from each according to his means." The source of this desire for state medicine is not the medical profession. Its members have not sought this process of regimentation. The profession will not be regimented if each member will do that which he rather passively hopes will be done for him by others; take steps to arouse public opinion, each in his own circle of contacts. The very confidence which the individual physician arouses in his patients, will, in the aggregate, prove the greatest menace to this insidious propaganda. In addition to individual effort, organized, coöperative measures are essential. Organized medicine has a potential influence sufficient to drive its opponents to cover. Whatever may be the outcome of this campaign to institute state medicine, the result will be chargeable to the profession; its defeat, to coöperative intelligent activity; its establishment, to a greater or lesser passivity. The responsibility is direct, the challenge clear. The medical profession must solve medical problems; it alone has the intimate knowledge which can furnish an intelligent and happy solution.

THE PATIENT BEFORE OPERATION

GEORGE J. CURRY, M.D., F.A.C.S.
FLINT, MICHIGAN

If we are to assume that the mere technic of surgery has almost reached its limits, if no further great development of the power of our hands is possible, how is surgical work to advance? There is, no doubt, great room for improvement in two directions. We should seek to obtain an earlier access to our patients and we should use far greater efforts than now seem general, to improve the chances of the patient before operation and to help him after the operation is completed. By methods which are growing in number, he must be restored to a degree of health and resistance which, so far as it is possible, will make the operation safe. Relief from suffering is sometimes no less important than rescue from impending death. Before any surgical operation is undertaken, he must be sure in the first place that mechanical treatment rather than medicinal or any other form of medical treatment is necessary or preferable by reason of its greater experience or greater safety. The widest margin for safety for the patient is the prime requisite. In the second place, the doctor must insure that the patient is in the best physical and mental condition to undergo operation, and finally we must not be content to believe that our interest in the patient ceases if he survives the operation, or on the day when his wound has soundly healed.

Surgery is such a jealous mistress that she requires from her devotee the whole and undivided service, taking every detail into consideration. Failure to coöperate with the clinical physician, the pathologist, the radiographer, et cetera, in other words, neglected teamwork is the cause of many and perhaps most of the disasters of surgery. There are occasions when delay would be fatal and risks have to be taken deliberately. All the findings should be well organized in each individual case. At the same time, a warning must be given against too much deliberation and too detailed a collection of evidence, whereby a broad and comprehensive survey of the case may be prevented. Our final judgment will rest upon the subconscious summing up of these features. This may be called surgical intuition, and intuition is a state of mind which comes as the result of experience.

The Chinese have a proverb to the effect that "he who deliberates fully before taking a step will spend his life standing on one leg."

One must be careful to avoid becoming biased. One especially dangerous form of bias is that which accompanies all concentration of thought. One may have his eye fixed intently on one point and his field of vision becomes blurred and features of the case are overlooked. The clinician must be careful of fatigue since the judgment of tired man is frequently worthless. One must be careful of timidity. To give opinions and advice which are welcome to the recipient is much easier than to impart evil tidings. If a patient has abdominal pain, a matter that is less trivial but possibly grave, it is essential to place him without undue delay in surroundings where he may be under observation and where suitable operative procedures may be employed if found to be necessary.

Be willing to have a consultation with a competent internist at all times in cases which apparently present a rather grave surgical risk.

An opinion regarding the cardio-renal system of a patient in the fifth, sixth, or seventh decade, about to undergo a surgical procedure certainly gives additional courage if the operation is to be done, and in addition estimates to a certain extent the amount of work that can be done. The respiratory tract of a child is a frequent location of disease which has general manifestations, so that the abdominal pain and associated symptoms may not be the primary cause of the trouble. Have a competent consultant if in doubt. Abdominal lesions are often hasty evils and a case that was favorable yesterday may be past hope today. One must not forget the human element. A short visit by the attending surgeon the night prior to the operation may help to allay some of the fears held by the patient prior to the seance the next morning. This is one of the biggest events of her life. She is interested in herself and not in case No. 999. A sedative may be useful. The risk in the average young and middle-aged adult undergoing operation, unless the case is one that has undergone the ravages of a long continued debilitating illness, is usually a good one. In the latter instance, a careful weighing of the personal assets of this individual patient and his resistance, is essential.

The various medical schools and surgical internships have stressed the importance of a knowledge of anatomy as being most essential to becoming a good surgeon. I believe that the first place should now be given to physiology and biochemistry of the surgical risk. I do not believe that anyone is more competent to judge the fitness of the aged surgical risk than the genito-urinary surgeon. The physiology and biochemistry of his risk precedes his judgment as to when he will operate. This ought to precede all procedures of an elective character for any anticipated surgery in the aged. The skin and subcutaneous tissues play a part. An amputation pulsation in the radial and dorsalis pedis arteries predisposes to good healing. Also a quick and deliberate estimation of same in emergency procedures. Inflammatory conditions in the young and aged are fulminating. The resistance of the appendix in a child and in the aged is low, and perforation with peritonitis is frequent. By no means can the surgeon shift his responsibilities onto another's back. Specialists are useful and sometimes essential. But, in the last analysis he must be a doctor and clinician.

Lord Moynihan says:

"In the future we must look for advance in surgery not so much to improve methods of technic as to a wiser application of methods now almost perfected. It is therefore, our task to improve surgical judgment and to that end a long survey of past experience is essential, and it is most necessary for us to devote a greater measure of attention to preparation and aftercare of the patient. It is said that surgery has been made safe for the patient; we must now make the patient safe for surgery."

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313 Metz Building, Grand Rapids, Michigan

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EDITORIAL

THE MENTAL PATIENT

The Present Emergency in Michigan in State Care of the Insane is the title of a thirty page brochure comprising a study by Fred M. Butzel, a prominent Detroit attorney, Dr. Robert H. Haskell, Medical Superintendent of the Wayne Training School and William J. Norton, Executive Vice-President Children's Fund of Michigan. The subject implies a deficiency in Michigan's care of these unfortunate people. The authors have used statistics of New York and Massachusetts for comparison, since these happen to be the most complete available for the purpose. Per hundred thousand of population Massachusetts provides institutional care for 610; New York, 563 and Michigan only 379. New York's provision for the Civil insane exceeds Michigan's by 71.5 per cent and Massachusetts exceeds us by 78.2 per cent. Both New York and Massachusetts exceed Michigan provision for mental disease and defect by 48.6 per cent and 69.8 per cent, respectively.

The writers go on to answer the objection sometimes raised that Michigan as a state cannot afford to provide enough beds for its insane demanding treatment, by comparing the estimated wealth of Michigan with that of the two mentioned states and with that of several others. The estimated wealth of Michigan in 1912 was 5,298 millions of dollars; in 1930 it was estimated at 11,781 millions. During this interval there had been a decrease in state mental hospital provision of 10 per cent. Massachusetts and New York during the same period had shown an increase of 31.8 per cent and 23.6 per cent respectively, while other states listed Minnesota, Illinois, California, Ohio, Texas and Pennsylvania had all shown substantial increases.

Michigan has suffered very much from the lack of any centralization of responsibility and authority, we are informed in a personal letter from one of the writers of the brochure. The old individual state hospital boards were wiped out of existence in 1921 and the State Hospital Commission created, which was to be the one body to administer the affairs of the entire State program. The State Administrative Board was created with the idea that we would have a cabinet form of government. The natural developments to be expected from such a departure did not materialize. While we had a definite change in form we did not have any new substance created and much of the older substance was lost. Particularly was the sense of responsibility lost.

The booklet contains carefully compiled information on the care and also the lack of it that prevails in this state. Lack of space prevents us going more into detail.

There are many explanations for conditions that prevail here, among them the demands upon state and county treasuries to meet the cost of education and interest on debts incurred in the past due to expansion. One cause is lack of a sense of responsibility on the part of the public at large. State Hospitals and other institutions for the mentally subnormal have been viewed as custodial rather than educative or constructive institutions. The body politic is not yet aware of the advances that have been made by the psychiatrist in a reclamative way. In the face of pressing demands made upon municipal and state treasuries these other institutions have apparently not received the consideration which otherwise might have been accorded them. This is a function of state medicine conceded by everyone.

TAXES

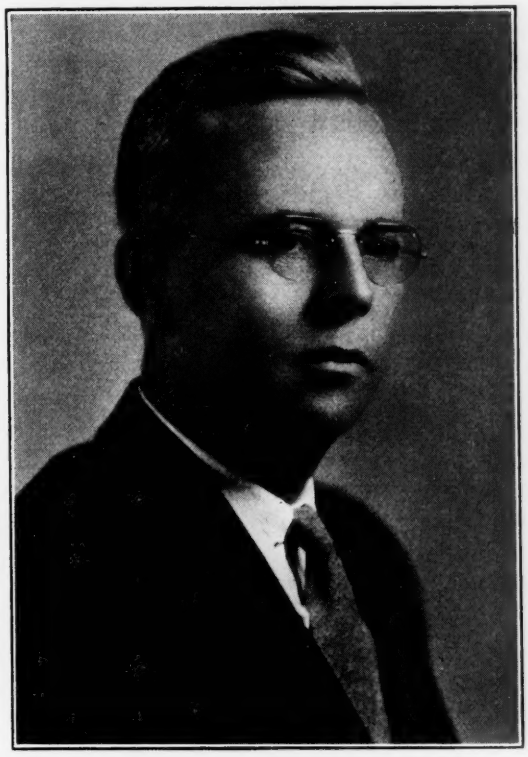
A subject for perennial discussion. Commenting on the general sales tax, the *Detroit Free Press* goes on to say that, "A general sales tax is a natural tax, which touches the pocket of every consumer, which visibly reminds him that he enjoys the privilege of sharing in the upkeep of the government that protects him, and which encourages him to take an active interest in keeping the costs of government down. The fairest and wisest tax is that which reaches every citizen in proportion to his ability to contribute. Any system of taxation which does not touch all tends to create a tax-paying class and a tax-eating class, a division of the citizenry that is as undemocratic as it is unfair."

We entirely agree. Furthermore the tax should be as democratic as the vote. There has been much discussion regarding the taxing of foods. The sales tax is probably the lightest tax we have on foods. The greater portion of taxes on commodities is concealed in the form of duties which make even many articles produced at home as expensive as the imported product. One merit of the general sales tax is the fact that it is not concealed in the cost of the article. If the various other taxes could be added onto the initial value of the commodity so that the purchaser might see the relation, namely, price of article so much, amount of tax, so much, the old virtue thrift would take on a new significance.

DR. VERNOR M. MOORE

Dr. Vernor M. Moore of Grand Rapids has been appointed by President Richard R. Smith as councilor for the fifth district to succeed Dr. Burton R. Corbus, who has tendered his resignation to take effect immediately. The choice of Dr. Moore is a particularly happy one. He is *persona grata* not only to Kent County, the largest unit in the fifth district, but will prove likewise acceptable to the entire state, for while appointed by a particular locality such a representative should never lose sight of his duty to the whole, whether he represents a profession or the civic population.

Dr. Moore is a graduate of the University of Michigan both in liberal arts and in medicine. He is a past president of the Kent County Medical Society and is at present president of the Michigan Association of Roentgenologists. Dr. Moore's private practice is limited to roentgenology. He is a member of the American Roentgen Ray Society, The Radiological Society of North



DR. VERNOR M. MOORE

America, The American Board of Radiology and is roentgenologist to St. Mary's Hospital, Grand Rapids.

Dr. Moore, as evidenced by his society membership, has been extremely active in medical affairs. He is popular in his district and is also well known to members of his specialty throughout the state as well as throughout the nation. A man of mature and sane judgment, he is a worthy successor to Dr. Corbus, whose unexpired term he serves as councilor.

NAMES OF SURGICAL OPERATIONS*

One would be surprised to know how many distinct surgical operations and procedures there are on record. We are all aware of anatomical structures that bear the names of the anatomists who first desected them out and described them, Fallopian tubes, Poupart's ligament, Fissure of Rolando. Beyond their historical interest such

*NAMES OF SURGICAL OPERATIONS Compiled and Arranged by the Western Surgical Association Through Its Special Committee edited by Carl E. Black, A.M., M.D., Jacksonville, Illinois. The J. R. Bruce Publishing Company, Saint Paul, Minnesota, 1935. Price $3.00.

names have no significance. A rose by any other name would smell as sweet. The Anatomical Society which met at Basel in 1895 sought to correct this condition by the adoption of an official international Latin terminology, The Basel Anatomical Nomenclature (B.N.A.). This has been only partially successful inasmuch as many of the old personal names still persist. It may require another generation before the anatomical nomenclature is strictly and universally scientific.

According to Dorland's Medical Dictionary there are 498 operations, 28 amputations, 25 incisions and 53 surgical methods, or a total of 604 procedures bearing the names of surgeons. To answer the implied interrogation with which we began this editorial, The American Illustrated Medical Dictionary by Dorland lists 3,313 operations, surgical methods and procedures. By far the larger number of these have come into being during the past forty years. This has necessitated the invention of new names by hybrids from several languages, by descriptive suffixes and by hyphenates. The Western Surgical Association, through its special committee, has attempted the work of simplification and has been able to reduce the three thousand odd operations to approximately eight hundred. The task has been Herculean and out of all proportion to the size of the volume of the finished work, a book of one hundred pages, including a number of blanks for further study and expansion. The committee adopted the following basic principles for their guidance. (1) Each operation shall have only one name. (2) Each name shall be in English (or a foreign language equivalent) and be philologically correct. (3) Each name shall be as simple and as short as possible. (4) The terms shall be merely memory signs and need lay no claim to description or speculative interpretation. (5) Related terms shall, as far as possible, be similar—*e.g.:* Excision of the Knee Joint; Excision of Ulcer; Excision of Eye. (6) Personal names shall be avoided as far as possible.

The committee have gone about the work in a scholarly way. They have given due consideration to etymology and have endeavored to make the best of a nomenclature that has been to a greater or less extent haphazard in character.

As every medical student is painfully aware, the great majority of our medical names are from the Greek and Latin—painfully aware, if these languages have not received due attention during his premedical training. Some time ago we listened to an address by a university professor in which he advocated the elimination of Greek from the curricula of high schools and colleges. At the same time he made a strong argument for the study of Latin. It is interesting to note the difference between the Latin influence and the influence of Greek upon the English language. The former is more subtle. It began with the Roman occupation of Britain, but the early Latin influence is limited to a few words and place names. The second influence was that of Roman missionaries to Britain. The third and greatest was that of the Norman conquest in 1,066 when a Latinized Gallic or French was introduced. Dr. William J. Mayo states in a "foreword" to the present volume that the English Language is sixty-eight per cent Latin. The Greek influence is of a different kind. It is limited for the most part to technical terms not only in science but in philosophy. We refer here particularly to Greek influence on the language; Greek influence on modern thought has been tremendous. It has influenced, if not dominated, our modes of thinking wherever thought processes are of a scientific nature. A reading of the pages of *Names of Surgical Operations* will convince one of the importance of Greek as the language of science. The student of the classics would naturally yearn for purity in word formation; yet custom wields a power that is hard to overcome, so we will continue to use such hybrids as appendicitis, venostasis, labiiplasty. Again custom will doubtless prevail in such words as uvulotomy or iliotomy in which, according to Professor Costas, the rules of Latin composition require that the final vowel of the first part of the compound be *i* instead of *o*, hence uvulitomy and iliitomy.

The necessity of simplification of the names of surgical operations may not have been felt by the average physician. A perusal of this little book, however, indicates not only the wisdom of such an undertaking, but impresses the reader with the fact that it has been exceedingly well done. This is a book that will interest every surgeon and will be welcomed by all editors of medical journals. The authors realize the fact that no work of this nature can be considered

complete in a first edition. They have therefore invited suggestions which may be incorporated in revisions of the work.

THE LATE DR. CAROLINE BARTLETT CRANE

The sympathy of his many friends in the medical profession of this state and elsewhere is extended to Dr. A. W. Crane of Kalamazoo in the sudden death of his wife, Dr. Caroline Bartlett Crane. Dr. Crane was a woman of very outstanding personality and ability. Before their marriage she was a minister of the Unitarian Church. Her liberalism, however, was also of the practical kind which led her to advocate civic reforms, as a result of which her work is apparent not only in her own city but other communities as well which through her have experienced a larger civic life. It is a matter of note that few persons have been accorded greater editorial acknowledgment for services rendered, as evidenced by the comment on the life work of Dr. Crane by the daily press.

MENINGOCOCCUS ANTITOXIN

The development of meningococcus antitoxin is undoubtedly an important step forward in the treatment of meningococcus meningitis. This new biological agent used by Archibald L. Hoyne in the treatment of 85 patients (*J.A.M.A.* 104:980, 1935) was developed by Dr. Newell S. Ferry, of the Parke-Davis Research Laboratories.

In 1931, Ferry, Norton and Steele (*Journal of Immunology* 21:293, 1931) reported experimental studies indicating that the meningococcus produced a specific extracellular toxin. It had previously been believed that the toxic reaction to this organism was due entirely to a substance or substances which are intracellular or endotoxic in nature. Up to this time antimeningococcic serum products had been prepared by methods only slightly different from those used in making the first experimental serums. The antiserums in use were primarily antibacterial in nature.

In the first experimental work done on this problem by Ferry and his co-workers, filtrates from bouillon cultures were found to produce skin reactions in a certain percentage of individuals. Later, strains of the four recognized types of meningococcus were used and horses and rabbits were hyper-immunized with filtrates from virulent cultures. Continued experiments showed that the antitoxins were the result of stimulation with soluble toxins and not with any so-called endotoxin or autolytic product. Conversely the lack of neutralizing properties of the antimeningococcic serum must be attributed to the absence of this soluble toxin from the bacterial suspensions with which the animals are immunized.

It was learned that animals injected with all four types of toxin developed antitoxins specific to the individual types. Thus, a polyvalent antitoxin may be obtained from animals so immunized.

After showing that the experimental antitoxins were capable of neutralizing meningococcic toxin and of protecting against fatal doses of meningococci, Ferry and his co-workers conducted further experiments indicating that by injection of a mixture of toxin and antitoxin an apparent immunity to the disease was produced. This point, however, will require confirmation before it can be regarded as established.

In the clinical work reported by Hoyne it appeared that the antitoxin was much superior to antimeningococcic serum. Twenty deaths occurred in the series of 85 patients treated with antitoxin, whereas 117 deaths occurred in the serum treated group comprising 211 patients. The percentage death rate was therefore 23.5 in the antitoxin treated group and 45.9 in the group receiving antiserum.

The meningococcus antitoxin is administered intravenously and intraspinally. There is reason to believe that the prompt administration of adequate dosage by the intravenous route will usually render intraspinal treatment unnecessary. Descriptive clinical data including an analysis of the cases treated may be found in Hoyne's article.

FOOD FADDIST

Ah maun', Ah'm aw'fu' gled tae hae ye write a wee bit line,
Aboot thae silly faddist folk an' diets o' vitamine,
An' a' th' ither spinach things thats on th' radio,
Ye gi'ed them a' a michty jolt an' showed them where tae go.

Losh, maun, ah'm gled ye've come tae Toon, Ah hope ye'll ever stay,
An' help's tae hae oor tummy fed on three square meals aday,
O' beef thats roastet sweet an' broon an' porridge i' th' morn,
An' finnan haddie noo an' then, an' tatties, peas an' corn.

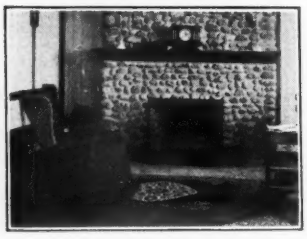
We'll noo hae starvin' diet folk enjoyin' soup tae nuts,
An' thinkin' for themsels instead o' foll'win' daffy mutts,
They'll fletcherize their ham an' eggs an' hae a cup o' tea,
An' fill their bellies fu' o' stuff that suits baith you an' me.

Ah weel, Guid Nicht,

WEELUM.

STREPTOCOCCIC INFECTION SIMULATING RINGWORM OF HANDS AND FEET

According to James H. Mitchell, Chicago, there is a marked tendency to regard all acrodermatoses as ringworm of the extremities. There is a need for careful laboratory examination of all dermatoses of the hands and feet before arriving at a diagnosis. He agrees with Sabouraud, Macleod, Walker and Roxburgh that impetigo (Tillbury Fox) is due to the streptococcus; this fact can be proved with ease. A group of five cases of streptococcic infections (impetigo) of the extremities simulated mycotic infection sufficiently to lead to errors in diagnosis. The infections were found to yield within one week to baths of corrosive mercuric chloride and weak ammoniated mercury ointment. (*Journal A. M. A.*, April 6, 1935.)



The Editor's Easy Chair

JOURNALISM*

It is just thirty years since I gave up an editorial position on a daily newspaper to enter upon the study of medicine. In my associations during that time I have not met with any erstwhile newspaper man who has entered the medical profession. Many newspapermen have later entered law, and according to a recently published book, "The City Editor," it is not an uncommon thing for young men with a legal education to pursue journalism—or as those engaged in it prefer to call it, newspaper work. There have been a number of persons who have achieved fame in other spheres of usefulness who have entered upon journalism late in life. Among them may be mentioned the late Theodore Roosevelt, Calvin Coolidge and the very much alive Alfred Smith, usually at salaries that made the stipend of the regular newspaper worker appear insignificant.

Within the past decade or so there have been founded schools or departments of journalism in connection with colleges and universities. I know nothing about them. A thorough training in English, history and economics and a few other subjects taught in the universities would be most helpful to the reporter or editorial writer. I have vivid recollections, however, of many first class newspaper men whose preliminary education was limited to high school or to public school. This is not to be wondered at since newspaper work is an education in itself, particularly to those right minded persons with a taste for it. The editorial writer is a student of affairs. He becomes master of written language and language has been called the garment of thought. The newspaper worker as a rule is not inclined to put himself forward. While he cannot be classed as a shrinking violet, his work is usually masked by anonymity so that to readers of newspapers the paper is an anonymous affair. A great deal of thought and study goes into the editorial pages of many of our best dailies.

We have long felt that it would be a great advantage if members of our various legislative bodies, state and national, might be chosen on account of their special training and fitness for the position of congressman or of state legislator. In other words, such positions ought to be looked upon as a career requiring special training, much the same as medicine or law. In the absence of special means for such a training, journalism seems to afford the best school for governmental representative. We take this opportunity to make this suggestion. Newspaper work, particularly the editorial and reportorial end of it, requires ability of a very high order and only those with versatility, endurance, freshness and clarity of speech survive. I said, "freshness"; perhaps the greatest misfortune that can overtake a writer is to become stale. To digress (a license the editor in his Easy Chair may claim) Sir Arthur Eddington, in the preface of his latest book, "New Pathways in Science," referred to three books written by him in the three years 1927-28 and 29 to the effect that an author has exhausted all he has to say in such sustained literary effort, so that any subsequent writing would be more or less repetitious. The newspaper writer, however, must keep it up; once he begins to slip, he may as well give up for good, since he cannot rest on his past laurels no matter how glorious his efforts may have been. The newspaper writer must also work under all conditions of health, or physical or mental fatigue. He cannot wait for lucid intervals.

* * *

As a profession medicine ranks high in the quantity of writing. Every one is acquainted with numerous volumes of medical text books and other works on medical and surgical subjects, not to mention medical periodicals. Almost every state has its medical journal. There are a few journals that represent groups of contiguous states. There is the national medical journal, the *Journal of the American Medical Association*, as well as a number of special and independent medical journals. There are many excellent medical writers in the United States, many who take as much satisfaction in turning out

*The reader's attention is called to the article entitled "The Development of Medical Books" in this number of the JOURNAL under the general department of A Moment of Medical History where the writer gives an interesting account of the development of the medical periodical.

a perfect sentence as they do in the acquisition of a perfect surgical technique. It is as difficult to write well as it is perform a delicate surgical operation and by and large the number of medical writers of the first rank is no greater, probably much fewer, than the number of skilled surgeons. Sheridan once said, "Easy reading makes damned hard writing." A paper which appeals to the reader not only from the viewpoint of subject interest but ease in reading doubtless has cost the writer a great deal of effort. He has probably changed words and phrases, touched up sentences and clauses and revised it numerous times with a craftsman's skill, thus justifying Sheridan's strenuous expression.

* * *

Since many physicians of recent years have turned to hobbies, might we suggest medical writing as a hobby for some—one that may be pursued with all the zeal of a devotee. Writing maketh an exact man, quoth Sir Francis Bacon. Exactness is a quality that is invaluable to a professional man, and particularly to a physician. So far as writing is concerned, a certain technic consisting of the rules of rhetoric must be mastered and the rest involves the personal equation. If a writer has in him qualities that would tend to make an artist, he will meet with some measure of success. The late Lord Balfour was wont to say, "What pleases me most is to write something quietly by myself, to touch it up and to complete it with a feeling that one really has done one's best." Is this not art? and is the effort not worthwhile?

TRENDS IN GRADUATE TEACHING

Charles Gordon Heyd, New York, in discussing graduate teaching, gives three distinctive trends in graduate medical education: (1) a research fellowship in pure science, (2) a continuous and periodic re-education of the great bulk of practitioners serving in dispensaries and clinics and (3) the training of specialists. The problem of medical service to the community, so far as the quality of the service is concerned, is largely in the hands of medical schools and voluntary hospitals. Failure of the legislators to recognize the preeminent technical ability of these custodians of medical education will invariably bring about a depreciation in the quality of medical service. Scientific advancement in medical education, in a personal sense, will rest on the ability (1) to observe, (2) to correlate repeated clinical observations and, ultimately, (3) to generalize on these facts. If true science is the power of performance, then a means should be encouraged that will place the prospective student in contact with great clinicians.—(*Journal A. M. A.*, March 30, 1935.)

A MOMENT OF MEDICAL HISTORY

W. T. D.

THE DEVELOPMENT OF MEDICAL BOOKS (Continued)

Though books had been printed by the mid-fifteenth century, printing as a method was not immediately adapted to medical purposes. The earliest incunabulæ were essentially religious or literary in character. In a few years, printers found it profitable to augment their literary output with fugitive sheets, charts or popular broadsides suited to the tastes of a semi-illiterate population. Pseudomedical and astrological subjects formed a considerable section of such publications. They were the predecessors of the modern almanac. The *Mainz Kalender* of 1457 was a famous example of those works which presented diagrams with the places for phlebotomy and schedules for purging. Astrological data and zodiac figures were similarly included.

Works of a distinctly medical character did not appear till after 1470, full twenty years after the establishment of printing methods. Nevertheless, in a single decade thereafter, over two hundred publications were printed. Two-thirds of the work was done by Italian printers while the bulk of the remainder was done by Germans.

The books consisted of folios with two column pages or quartos having one column to a page, and all were in Latin. Gothic and Latin type characters were equally popular. Occasionally, ornamented capitals and marginal decorations were used as embellishments to break the monotonous regularity of the pages. Actual illustrations made from woodblocks were uncommon, though not unknown. The paper, which was hand made from macerated rags, was unglazed, but smooth, and when held before the light was marked by a grid-like pattern caused by the paper mold. Bindings were usually undecorated vellum or leather. Of the two hundred or more medical books which appeared previous to 1480, the bulk were medieval or fifteenth century authors. There were few which did not present the scholastic or Arabian bias. About thirty publications were translations of Arabian authors. Only a

score or slightly more of the books were of classical authorship, and neither Galen or Hippocrates was represented except as abridged commentaries.

Medical works during the remainder of the century were little different, with the possible exception of improved illustrations in the anatomical and surgical works. Publications were written in Latin although German formed an occasional alternate language north of the Alps. In the last few years of the fifteenth century and in the first third of the sixteenth, a development of incalculable importance to medicine appeared in the use of Greek type characters and the printing of the classical authors in Greek. The physician could now procure accurate texts of classical authors unsullied by Arabian and mediæval commentaries. The new texts formed a background for Humanistic studies which paved the way for modern philosophical and scientific viewpoints.

Throughout the sixteenth century, great numbers of medical works were printed. These included many original works which came to influence contemporary thought even more than classical and Arabian works. The great anatomical folios of da Carpi, Vesalius and Eustachius, the herbals of Brunfels and Fuchs, the surgical works of Paré, the therapeutic doctrines of Paracelsus, the natural history of Rondelet and Gesner are exemplary of the original viewpoint of the period. These works were invariably better illustrated than the incunabulæ. By the middle of the sixteenth century, etched or engraved copper plate illustrations, though known for a hundred years, first came to supplement those made from woodcuts. The engraved title page with decorated motifs, allegorical figures or the portrait of an author became distinctive characteristics of sixteenth to eighteenth century books. Publications of the period were increasingly printed in Latin type, of which there were a number of styles. Gothic print was little used in Italy, France and England after the early 1500's.

The dissemination of knowledge by books and universities and the Humanistic viewpoint of the sixteenth century fostered scientific enquiry among a number of scholars. Amateurs vied with ecclesiastical and professional scholars in the enthusiasm devoted to natural philosophy. Local groups gathered to present and discuss new observations, and advanced workers felt the necessity of keeping contacts with colleagues living at a distance. An extensive scientific correspondence developed and many discoveries were announced in private letters during the seventeenth century. Several scholars of either amateur or professional status, such as Mersenne and Oldenburg, acquired considerable reputation through their extensive correspondence. These scientific gossip-mongers served as clearing houses for numerous investigators. If a subject warranted it, correspondence was sometimes included in a major investigation appearing in book form. Occasionally, minor conclusions were presented to the interested public in small pamphlets.

By the mid-seventeenth century, such methods of communication between scientific men were noticeably inefficient, since the success of private communication depended on the friendliness or hostility of writers. Frequent quarrels, such as those between Huygens and Hooke or Newton and Leibniz, were fomented through lack of understanding. The open communication became the solution.

An unusual development which led to the scientific journal was the newspaper. From early times, bulletins were posted in conspicuous places or the news was announced orally. In 1536, a circular appeared for a time in Venice, and from the coin which was the price of a copy, it was known as the *Gazette*. It was not until the early seventeenth century, however, that newspapers began to appear in European countries either as sporadic news sheets or as papers appearing at regular periods. The difficulties of communication among scientific men were eventually solved by methods similar to the newspapers.

From 1633 to 1642, the first serial of scientific nature appeared in weekly pamphlets published by Renaudot and called *Conférences du Bureau d'Addresse*. Though these served as a medium for discussion and information, they were unpopular with the medical profession and were suppressed within less than a decade of their establishment.

Another French weekly appeared in 1665 as the *Journal des Scavans* under the editorship of Denis de Sallo and Abbé Gallois. This publication received the support and the coöperation of such savants as Kircher,

Boyle, Huygens, Pecquet and Leibniz. The *Journal* was the predecessor of all literary and popular magazines. Two months after the French journal, the *Philosophical Transactions of the Royal Society of London* appeared in monthly editions as the standard for all later scientific publications. This journal still persists as one of the outstanding scientific publications of today.

The first distinctly medical journals were the Teutonic *Miscellanea curiosa sive Ephemeridum medico-physicorum Germanorum* and the *Acta medica et philosophica Hafniensia* of 1673. Several other medical journals appeared before the end of the seventeenth century, the Leipzig journal, *Acta eruditorum* (1682), probably being the most important.

It may be noted that the journals were written either in Latin or in native languages. The popular character of many of the journals soon led to the disuse of Latin as a scientific language. French, German and English began to supercede Latin at the beginning of the eighteenth century, and, by 1730, Latin was seldom used in books.

From the beginning of the eighteenth century, the journal type of publication became increasingly popular. The number increased rapidly, in fact doubling each twenty-five to thirty years until the present when several thousand journals are recorded. Though many of these, of course, did not persist for more than a year or two, a surprisingly large number continued for ten to thirty years or more.

With the increase of all types of publication, the necessity for protecting authors and publishers became very urgent. At the turn of the fifteenth century, printers had been given privileges by local authorities, such as the sole right to publication in certain districts. Plagiarism by authors and printers in foreign countries, however, was quite common in the fifteenth, sixteenth and seventeenth centuries, and attempts to mitigate this evil were made from time to time. The first legal privilege granted to Italian printers was made by the Senate of Venice in 1469. Within fifty years, similar privileges were common in most European countries. Early in the sixteenth century, most of the copyright conditions of later legislation had been outlined. During the seventeenth and eighteenth centuries, penalties for infringement of copyright were made increasingly stringent. Occasionally, certain countries provided reciprocal protection for authors, but international copyright as such dates from the Bern Conventions of 1885 and 1887. International copyright in the United States was not enacted until 1891, although various other copyright laws had been passed during the preceding hundred years.

While copyright laws were undergoing change and improvement, the medical journal was assuming a new importance. The eighteenth century saw a great number of medical magazines dealing with subjects of medical, surgical and obstetrical interest. Distinctly scientific conclusions were interspersed with more practical articles or were included in the reports of academies or in special journals.

At the beginning of the nineteenth century, the medical journal began its most significant development. Early American journals, such as the *New York Repository* (1797) and the *Philadelphia Medical and Physical Journal* (1803) appeared at this time. Within the next thirty-five years, such important journals appeared as the *Lancet* (1823), the *Philadelphia* (later the *American) Journal of Medical Sciences* (1820), the *Boston Medical and Surgical Journal* (1828) and *Schmidt's Jahrbücher* (1834). During this time, certain journals of scientific character were initiated. Liebig's *Annalen der Chemie* (1831), Müller's *Archiv fur Anatomie und Physiologie* (1826) and the *Annalen der Pharmacie* (1832) were representative of such periodicals. Toward the middle of the nineteenth century, the specialization of journals increased. Many of the leading journals of anatomy, physiology, pathology, public health, pediatrics, neurology and obstetrics date from this period. The more general type of medical journal increased in number and many of the now important medical journals were started. These included the *Comptes Rendus de la Société de Biologie* (1849), the *Berliner Klinischer Wochenschrift* (1864) and the *British Medical Journal* (1857) among others.

The territorial spread of the medical journal is evidenced by the appearance of such serials in India, Australia, Tasmania and Canada toward the middle of the nineteenth century. This is shown also by the rise of numerous journals associated with

such medical centers as Glasgow, Liverpool, Brussels, Munich and Bologna in Europe, and Philadelphia, Baltimore, Detroit, Galveston, Cincinnati, Chicago and Kansas City in America. This was also the period of the founding of state medical journals when California, Rhode Island, Iowa and Maine among other states developed journals of usually local appeal.* A phase of medical journalism for several decades of the nineteenth century was represented by journals of Homeopathy.

Among the more important journals to appear later in the nineteenth century were *The American Journal of Obstetrics* (1864), *The Annals of Surgery* (1885) and *The Journal of the American Medical Association* (1883). During this period and later, a great number of special journals arose reflecting the advances of various medical fields. Probably, the most recent journals which have acquired outstanding recognition are *Surgery, Gynecology* and *Obstetrics* (1905) and *The Archives of Internal Medicine* (1908).

The large number of periodicals and the continued publication of books and monographs in the nineteenth century speak not only for the interests of medical writers and readers, but also for the activity of printers. Of course, medical literature forms only a fraction of the world's literary output, but the general development of medical literature is typical of the literary facilities which were available in other fields. Such a tremendous production was possible only with the development of technical methods of printing.

In the earliest periods of printing, all paper was made by hand from cotton and linen rags. The sizes of sheets of paper were thus limited to the dimensions of a hand paper mold. This, by the way, led to standard size sheets and the habit of folding sheets to form folio, quarto and octavo pages. After 1798, machines for producing a continuous web of paper were devised and improved. The impetus to printing which this method allowed was somewhat counteracted by occasional shortages of suitable rags for paper making. After much experimenting, wood pulp came to supplant and finally, about 1880, to surpass rags as a source of paper making material. It was not, however, until the period of the World War that wood pulp paper acquired the durability of rag paper. Paper used in printing between 1880 and 1910 has become discolored and brittle with age so that the future preservation of books of this period will become a serious problem for libraries. These books are disintegrating more rapidly than those made during the fifteenth and sixteenth centuries.

For two hundred years after Gutenberg, printing presses were similar in principle to the earliest presses used. They were wooden affairs which stamped the sheets one by one. By 1800, iron presses were developed and within fifty years of this time, the mechanics of presses were improved. Cylinder and automatic presses, the rotary press and the stereotype process came into use. Inking rollers and the ink itself were improved during the early nineteenth century and typesetting machines of a practical sort appeared in the latter half of the century.

It has already been noted that woodcut and copper plate illustrations were as old as printing with movable type. Book illustrations prepared from wood or copper approached a fine art in the sixteenth, seventeenth and eighteenth centuries. Such methods of handicraft, though expensive, served as the sole type of illustration till after 1798 when one Aloys Senefelder invented the process of lithography. This process during the nineteenth century became the important medium for reproducing elaborate scientific drawings. Several colors and soft gradations of tone were possible. Some years after the development of photography and after much experimenting, photographic methods were finally adapted to book and magazine illustration. The zinc etching appeared in 1860 and, by 1880, usable half-tones were developed. The modern half-tone dates from 1891, and a year later a successful three color process was invented. Simultaneously with the development of half-tone engraving came the process of photogravure.

Up to the nineteenth century, books retained a certain degree of uniformity in both their printing and illustration. Following this time, bookmaking deteriorated in quality as it increased in quantity. Many of the illustrations, however, were excellent and were exemplified in a number of

*The extent of local medical publication during the latter nineteenth century may be gauged by the number of publications which appeared in Michigan. From 1848 to the establishment of the *Journal of the Michigan State Medical Society* in 1902, no fewer than fiifty-two journals appeared.

beautiful atlases and morphological papers. In the latter third of the period, zinc etchings and half-tones gave rise to less elegant illustrations. On the poor wood pulp paper of the time, books with simple mechanical illustrations of the 1870's and 1890's represent the nadir of the printers art. Toward the end of the century, mechanical perfections in illustrations, new designs of type and the energy of a group of outstanding printers resulted in a new development in the bookmaking art which is reflected in modern textbooks, monographs and journals.

COMMUNICATIONS

PRESIDENT RUTHVEN PROTESTS

University of Michigan
Ann Arbor
President's Room April 22, 1935

My dear Dr. Corbus:

During the past few months, rumors have come to me that some of the members of the Michigan State Medical Society were holding the University responsible for certain changes in a bill passed in the 1933 session of the Legislature in which no provision was made whereby the medical profession received remuneration for services rendered in certain cases in local hospitals.

University authorities knew that no members of the University faculties were connected with this matter either directly or indirectly and we were pleased to learn that this fact had been brought out and accepted at a meeting of the executive committee of the Council of the State Medical Society, held in Lansing early in this year.

A few days ago, the Ingham County Medical Society, through its President, Dr. Harold Miller, and its Secretary, Dr. Russell Finch, sent me a telegram protesting against alleged opposition and lobbying against Senate Bill No. 277 by members of our faculties and other employees. Knowing this charge to be as unfounded as aforementioned rumors, and considering it a grave affront to a state institution, I telegraphed the Ingham County Medical Society for an immediate withdrawal of the charge, making it clear that, if said charge was not withdrawn, I would be compelled to place the matter before the Governor and Legislature for investigation. Within a few hours, the officers of the Ingham County Medical Society communicated with me, withdrawing their charge and acknowledging their belief that no basis for it existed.

I am giving you the above information in order to assure myself that all of your members will be equally informed upon this matter.

Sincerely yours,
ALEXANDER G. RUTHVEN

APPROVES EDITORIAL

To the Editor:

Permit me to congratulate you on your editorial "Lay Control." I suggest, however, that you remove your padded gloves and strike bare handed. Why not say this law is for the Class A hospitals and those permitted to work therein? Why not make ability predominate? What difference does it make where the work is done if the work is done properly?

A doctor has his office equipped to do nose and throat work, not with student nurses but graduate nurses of years' experience; not with new interns but a fully trained graduate doctor, one who had two years' training in one of the best hospitals, besides ten years of active practice. Everything else in proportion. He cannot do this work because his office is not an A Grade hospital. You see it is not the ability of the doctor which counts. It is merely a question of whether he has the good fortune to have some kind of pull to get on the staff of an A grade building. About twenty per cent of the time that is ability.

When medical laws do not favor the profession as a whole and give the public the right of choice of their doctor they are wrong and should be changed.

HUGH HARRISON

Detroit, April 17, 1935.

Note.—We are informed that so far as the Wayne County Medical Society is concerned there is no discrimination in favor of any hospitals in Wayne; all qualified should be eligible including their staffs to participate. In justice to all qualified physicians none who is willing to assist in the care of this class of patient should be denied the privilege of doing so. However, the regulations or laws are not made by the medical profession.—EDITOR

SHOULD THE NUMBER OF PROFESSIONAL STUDENTS BE RESTRICTED?

In seeking an answer to the question of whether the number of professional students should be restricted, Raymond Walters, Cincinnati, presents facts as to the actual numbers in the professions, giving them in clear and orderly fashion without statistical details, and quotes views of advocates of differing interpretations and proposals, embodying the material which members of the Committee on Standards of the American Council on Education coöperated in gathering and which the chairman of the committee has assembled and summarized compactly and objectively. The author ventures an opinion, which seems to issue from the facts and from other related facts and circumstances, that most of the perplexities will clear if the problem is approached from the angle of quality. By quality in the physician he refers to expertness, character and personality. It seems to him that, if the doctrine of quality first is accepted, the determination of quality among candidates for the medical profession may well be left to the medical colleges. If so, there will probably be a solution of the question as to numbers in the profession—a solution that issues from the economic conditions in which the profession finds itself. The gifts that trickle in should be assigned not for more enrolment but for more research and for improvement in teaching facilities. Each medical college should resist the temptation to take more students merely to make money. Each medical college should hail quality as its obligation and goal as never before. In this policy there should be concurrence by the Council on Medical Education and Hospitals of the American Medical Association, by the Association of American Medical Colleges, and by the Federation of State Medical Boards of the United States. (*Journal A. M. A.*, March 30, 1935.)

DEPARTMENT OF SOCIETY ACTIVITY

Edited by The Secretary

ANNUAL CONFERENCE OF COUNTY SECRETARIES

University Hospital, Ann Arbor, Michigan
March 27, 1935

The forenoon session of the Secretaries Conference was devoted to an excellent Clinic conducted by Doctors C. C. Sturgis, John Dorsey, Udo Wile and F. A. Coller. Between 50 and 60 secretaries and officers of the Society were present.

Luncheon followed at the Hospital.

AFTERNOON CONFERENCE

DR. B. R. CORBUS: Gentlemen, I know that you had an enjoyable morning, and I know that you are going to have an instructive afternoon.

There was a book written recently under the title, "Life Begins at Forty." Paraphrasing this title someone has said, "Life begins when you leave the Grandstand for the Arena." Life begins for the County Society and for the State Society when in growing numbers its members step from the grandstand, where he applauds and criticizes, a bit more criticism than applause as a rule, and gets down into the arena and works for the Society.

The plan which Michigan has followed where we pull a man down from the grandstand into the arena by giving him an important committee appointment, works most effectively. It has been the feeling of the Executive Committee and the Council that the more men we could get to work in the State Society the more interest would be taken, the more loyalty developed, and the further we would go as a Society. Certainly you have already discovered that that is true in your County Society. There comes a time, of course, when some of us will step from the arena into the grandstand and let the younger man do his job. When that time comes I hope I shall be one to encourage and help, and not criticize. Get your men down into the arena, you men who are secretaries of county societies, and put them to work.

From time to time the Council has considered the employment of a full time secretary. Such a matter is under consideration now. There are certain advantages in having a full time secretary, and there are certain very distinct disadvantages, be he a lay secretary or a medical secretary. As I observe the activities in states who employ a full time secretary I note that there is tendency towards the concentration of more and more of the society activities in the central office—work that I think should be done by the members. Although I admit that sometimes that work might be done more efficiently in the central office, it might not be done so advantageously. I have a tremendous appreciation for those men who work on important committees and it has been Michigan's plan to delegate much work and much responsibility to committees. You see in the record as noted in the JOURNAL from time to time, the amount of work that is being done, the accomplishments that have been made, but it does not give a real picture of the amount of work it takes to bring forth these results.

During the afternoon I hope that there will be time for some discussion of the things that are uppermost in your mind, things aside from the economic problems which are before us and the legislation which is under way in Washington and in Lansing.

I think we will have a member of the Legislative Committee here later, who will tell you about their work. They want your help. They believe, as I do, that the work which you can do with your own legislators in your own community, is of the greatest importance, more important than anything else that can be done in furthering good medical legislation and preventing bad.

One more word and I am through. Our minds are full, these days, of the general economic situation. We are so concerned about the economic future of medicine, probably a greater concern than is justified, for I cannot believe that we are going to be regimented. I cannot believe that the mass of doctors is going to be overwhelmingly embarrassed by any federal legislation. I see the probabilities of a change in the pattern of medical practice, but I think we will live through it, and I do not think that medicine is going to suffer scientifically. I note with some concern the amount of time that you give to a discussion of economic problems and to discussions anticipatory of possible things which may happen, to the neglect of real scientific medicine. After all, if we are to go forward, if we are going to do things, we must make an earnest effort to advance the scientific side of medicine. And so I urge you, secretaries, to not neglect the scientific part of your program. In your meetings you frequently become involved in some discussion of economics. When this happens in the first part of the program you rush through the scientific portion as best you may. May I suggest that you put your scientific program first and let your members stay until three o'clock in the morning if they want to continue the discussion of the economic situation.

It has been customary for this body to elect its own chairman.

Dr. Russell L. Finch of Lansing was unanimously elected chairman and took the rostrum.

DR. R. L. FINCH: The first talk on the program is by Dr. Julius H. Powers, the Council Chairman, who will give some introductory remarks.

DR. J. H. POWERS: Mr. Chairman, County Secretaries: My position on the program is sort of an extra. But I do want to express, as coming from the Council, the pleasure that so many of you are here.

I feel that the county secretary is to our state organization very much the same as a millwright is to a factory. You know, it is the millwright's duty to keep the wheels moving. If anything goes on the hummer, the millwright fixes it up. If there is a new machine that has to be installed or introduced, why, it is up to the millwright to do that. And that is exactly what I figure the average medical secretary must do in his county. He must keep the wheels moving. He must install the new ideas, present them to the society, so that the society will be able to pick them up.

We of the Council, more than the House of Delegates or the rest of the society, get to know which of you secretaries are the most efficient. We know

that certain societies always have a good program and everything is running along smoothly. We also know that in certain other societies things are liable to go along in a rather haphazard way. It was with that idea that the Council decided on having these yearly meetings of the county secretaries, our idea being to give you a little bit of pep, a little more ambition to put your society on the map. You know how we figure the pep curve. I figure that when the pep curve of a county society is on the up-grade, going up all the time, everything is all right with that particular secretary; but when the pep curve and activities are on the down-grade, why, in some way that secretary is falling down.

The last word I want to leave with you is that you have your local problems, we of the Council have our many State problems, but we are all interested in both. The Council would be very glad to have you write either to your councilor or to your state secretary in regard to these troubles as they come up, because many of them can be ironed out in an easy and simple manner. Don't be afraid to write to your councilor. He will be on the job. He knows what is going on in the inside. He can be of a lot of service to you, and your state secretary, too, can be of a great deal of service to you.

We have one little plan in Saginaw, which I am going to transmit to you as being something worth considering. We don't mix our business and our scientific programs any more. We have special business meetings that deal with the business problems of the county and the politics, et cetera, that come up before the local organization. When we have our regular monthly meetings they go as a scientific meeting, purely and simply. That works well in our particular locality. I don't know that it would work in other localities, but with us it does. I feel the same as Dr. Corbus: that it is a great mistake to put in too much time on the business end of the thing, to the discredit of the scientific side of your county meetings.

I thank you.

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DR. FINCH: Mr. William J. Norton was unable to be here today to talk on the subject of medical relief in Michigan; and Mr. George F. Granger, who is the Field Secretary of the FERA, will speak to us.

Medical Relief in Michigan

MR. GEORGE GRANGER: Secretaries of the county medical societies:

I regret that Mr. Norton was unable to be here today, because he is probably the foremost social worker in the State and he has given particular and great attention to this topic of medical relief. He is a member of the State Emergency Welfare Relief Commission. He has studied its workings as you have seen them function as a part of our program.

I think it might be well, before outlining our medical relief program, if I covered briefly the situation as it exists in the relief program and in the relief situation in Michigan.

In less than two years after we had our famous break in the stock market in the fall of 1929, an unemployment census in Detroit showed that at that time 223,000 people were out of work, or about 37 per cent of the people unemployed were normally employed. In January, 1931, the next year, it had gone down to 41 per cent; and in checking the payrolls in the factories in Detroit, it was found that for every dollar that had been paid as wages and salaries in the period from about 1926-1928, only 28 cents was being paid in payrolls, as compared to the previous amount of one dollar. Possibly that shows to how great a depth we had actually fallen.

At the present time we have close to 200,000 families receiving relief in the State of Michigan. The average members of each family are about 4.2, which means that on relief we have from 800,000 to 900,000 people in Michigan—nearly one out of five. That is the problem, one of the problems with which we are confronted.

In the old days when we gave relief we usually considered that we were giving it to the laborers, the common wage earners. It is changing now. Of the people on our relief rolls, about one out of every four is skilled or semi-skilled, including some professional men. There are nearly 7,000 engineers on relief, over 5,000 salesmen, between 4,000 and 5,000 office workers. About 10,000 non-manual workers, which is the higher type of occupation, are on relief at the present time.

At first, we tried to meet this as we had been accustomed to in the past—by drawing on the funds of private organizations. After the first year, they were exhausted. People who had contributed to such organizations were unable to contribute as generously as they had in the past.

Local groups then began to look toward tax funds for the care of these people. At first, local cities tried to meet the relief problems with their local funds; but soon they too were exhausted.

As a result, our Federal Emergency Relief Administration was organized about two years ago, in fact, a little less than two years ago. In Michigan the State Emergency Welfare Relief Commission was organized in the summer of 1933. It is not yet two years old. It had to start from scratch. It had no organization which it could use to distribute this relief and which it could use as channels through which it would distribute the different types of re-

lief, such as medical relief. It had to start an organization; it had to start everything from nothing. When you know that we are taking care of nearly a million people, you can see what a problem we had on our hands to do in that brief time.

Before I touch on the question of medical relief, let me call your attention to the fact that in general there are three types of families whom we are supporting: (1) one group, that type of families in which there are no employable persons. That is the group where either the wage earners are dead, there are no wage earners, or they are all crippled or handicapped. We cannot consider that they ever will be able to support their families. We will always have them on relief; we must permanently take care of them. (2) We have a second group of the pseudo-unemployable, people who are in the twilight zone, who actually can work, but for whom it is difficult to get jobs—men who are getting older, and whose alertness and intelligence are on the lower border line; in fact, that type of people who are the last to get jobs. (3) Then we have our large group of people who are definitely employable and who want to work, but there is not a job waiting for them.

In taking care of these different groups, we have to realize that their wants are many. We have had to realize that they need groceries. We have had to realize that they must be given shelter. We have had to realize that they need food, that they need fuel, that they must have clothing, that they must have medical care.

Within a few months after the Federal Emergency Relief Administration was organized in Washington, it started operations; it issued several pamphlets, setting down certain general policies which must be followed out by the state organizations in distributing federal relief funds in the states. They set forth several very interesting premises and programs, and I think that as far as we are concerned, as far as you are concerned, their program of medical relief is one of the interesting steps which they took. Up to a little more than a year ago, I think we will all admit that the common method of furnishing medical relief, outside of the private charity work which was done by the doctor, was through clinics and organizations furnishing paid service of that kind. However, the FERA set down a new principle. It said that in taking care of the physical needs of these people on relief that the traditional relationship of patient and physician should be preserved, if possible. I think that was a new step. If my understanding of physicians is correct —I am not a physician, but I have many good friends who are—it is something which physicians have been striving for for a long time. They want such a recognition of themselves in charity work as in private practice.

We have taken the same step in regard to some of our other programs. At the present time, instead of having a commissary, where a relief client goes in with a basket, and collects his food, we have abolished all food commissaries in Michigan, with a few exceptions, and we have given the orders to private citizens. So we are following the same practice right through.

In addition to this, it was laid down in the program that the funds voted for medical care must be used only for the care of welfare clients in the home or in the office of the physician. In other words, no FERA funds may be used for the hospitalization or institutionalization of any persons or families. One of the reasons for that is this: federal funds appropriated for this purpose were not appropriated to take over the functions and the departments which were already functioning, but merely to supplement and augment the facilities which they could furnish. It is very common for people to kind of stick out a hand for federal appropriations; they like to make a little pork barrel out of it. And many of our cities lean the same way. They see large federal funds being appropriated, and they say, "Why should we use our money? Let's use federal funds." So to prevent this, it was said that these funds could be spent only for private unemployment medical emergency purposes; that medical care in hospitals must be taken care of by the local existing agencies.

In the fall of 1933, in November, in fact, the State Emergency Welfare Relief Commission met with representatives of the State Medical Society, and a medical program for Michigan was adopted at that time. This program, in most particulars, follows the federal program which had been sent us. The program lays down certain general rules and regulations. It also lists a brief number of maximum fees which may be paid for certain services. This program

has not been changed. It was supplemented in January of this year, 1935. I call your attention to that because within the last week I found an affidavit on my desk which was sent by a physician to the Governor of the State and was forwarded to our office, protesting against the frequent changes in our medical program. As far as the state is concerned, there haven't been any changes. The program was adopted in November, 1933, and was supplemented in January, 1935, but not changed, and it still stands as those two programs were written.

I would like to pass over this and touch some of the high points that are covered in our medical program. I think that probably, if there are irritations in your local counties over this caring for people on relief, they are due, for the most part, to the fact that our program hasn't been explained sufficiently and in detail to those who are participating under it.

In the first place, payments must be made directly to the physician. We are not able to sign a contract with any other person or with any county medical society whereby a lump sum is paid directly to that county medical society and then distributed to its members. Outside of that one point, however, any of our county commissions are eligible to sign a contract with any county medical society for the care of indigents in that territory. But the physicians who render those services must be paid directly by our commission, with our FERA checks.

As I stated before, we are endeavoring, in so far as practicable, to maintain the traditional relationship which has existed between a welfare client and the physician.

It is a further ruling that in so far as possible the work should be distributed among the physicians of the county with as great an equity as possible. I think that you can see that it is a manifestly prohibitive procedure, which we could not follow, to allow patients from one end or corner of the county to go to the further corner of the county to secure a physician whom we have to pay 25 cents a mile mileage. Naturally, we should prefer them to pick the physician who is nearer to their residence. I know of one county where they have four physicians in the county, so they divided the county up in four sections, mutually among the doctors. Each physician said that he would handle the people in his section.

Only those persons are eligible to receive medical care who are on relief. Persons are not eligible, and doctors are not eligible to use FERA funds for medical services for persons who are not on relief. In other words, I am speaking of the border-line case. A man may be earning a small salary. He is getting enough to get by on, but he doesn't seem to have enough money to pay his doctor. Our FERA funds cannot be used for those families. The family must be on relief before we can pay for medical services. Apparently, in some of the counties, that has caused some confusion, because some of the doctors have felt that they should be paid for medical services for that type of indigents. However, it is impossible, as our program is set up at the present time.

There are other types of individuals who are also ineligible to have FERA funds paid out for their medical relief—those people who are chronically ill, with certain exceptions. Those who are chronically ill should be paid for from local tax funds or other sources, but not from emergency unemployment funds. In a few counties where there have been no local funds, where the taxing power has been exhausted, certain exceptions have been made. But in general, it is our ruling that chronic cases cannot be cared for out of FERA funds. That is the problem or responsibility of the local board of supervisors, the local superintendent of the poor, or whatever form for local relief you may have. In any case, we cannot take care of any chronic person for a period longer than three months and make more than one call a week on that person.

One of the points of irritation, I fear, on the part of physicians is the fact that it is necessary to secure an authorization to give services to a person on relief. The doctors, apparently, who get used to it don't mind it so much. I presume that if I had never had to do anything of that nature I would feel the same way. But you know, I am afflicted, the same as you are afflicted, with these people called "authorities," and there are certain definite rules and regulations specified for the protection of the use of federal funds. We are spending pretty close to $6,000,000.00 a month of federal funds in the State of Michigan. An immense number of millions is being spent throughout the United States, and it is not only inevitable, but necessary, that very

definite rules and regulations must be drawn up to safeguard the handling of those funds; and this is only one of the ways in which it is being done. We may sympathize with you in your desire not to have to go through some of the difficulties of the "red tape," but we can't get away from these orders, and they have the right to refuse to pay any bill which is presented in a different method than state or federal regulations prescribe. I don't know of any way to get around it, because it is a fact we have to face, and we just can't get by with it.

Our state program recommends that every county medical society establish an advisory medical committee. We recommend that this committee should meet with our county relief commission, and that mutually they should draw up a local medical program within the policies outlined in the state medical program. We also recommend that any differences of opinion, any issues which may arise in regard to local medical services, be referred to this county advisory medical committee for settlement. I can frankly say, and very truthfully say, that it has been our experience that in the counties where there are advisory medical relief committees and where these committees actually function, that our problems have been minimized; in fact, we have very few problems, as far as we know of, in the state office. It seems to me that when representatives of two groups get together—those administering relief and the physicians furnishing medical relief—and talk problems over, and understand each other's viewpoint, pretty soon these doubts are cleared away and there is very little hard feeling. We are urging our county relief administrators to approach the county medical society and suggest to them that they organize such advisory committees.

I think in general I have covered most of the points in our medical program. I don't know, Doctor, whether you want any questions asked.

DR. CORBUS: Yes, I should like to have questions asked if there are any who so desire.

Q.—What would you do in an emergency case where you cannot get in touch with the investigators?

A.—I am very glad to have you ask that question. The question is: What can be done in a case where a physician cannot get in touch with emergency relief administrators and get an authorization?

The answer is this: We have made a special dispensation in cases of emergency. If an emergency exists, a physician may make the call and inform the county office of the county welfare commission after the call is made, and if it is a justified call a retroactive authorization will be given.

Q.—I should like to ask this. During the last month orders have been issued that on order slips the physician shall state the diagnosis when he returns the slip to the welfare department. Yesterday an attorney called me, saying that one of his clients had been refused occupation in one of our local factories because the physican had turned in a slip saying that the person had epilepsy. Is that turning in of the diagnosis giving away confidential information, and are we likely to get in trouble? We are faced with a lawsuit.

A.—That is a very good question. It is a very difficult question to answer. Here is the situation as we see it. Regulations state that diagnoses or complaints as given by the physician must be listed on the orders. On the other hand, we do know that you are not eligible, theoretically, at least, you are not supposed to be eligible, to furnish that information that is confidential information. A good share of physicians, however, are furnishing that information. They are furnishing it in other situations, in questions involving insurance companies, and other situations.

Today we have to have it. We can't pay out funds unless we do have it. If it is insisted—if the doctor, rather, maintains that it is private and confidential and that he can't give it out, the only thing we can do is to secure a consent from the patient on the authorization or receipt to allow him to state on this order his complaint, or we will have to refuse to pay it. That is the problem we are up against, the same as you are. If anybody can answer it better, why, I would be glad to have suggestions.

Q.—It should be kept confidential, though?

A.—Oh yes. There is no question about that. I don't understand yet; in fact, I would like to have that specific case looked into. I don't understand how the information could have got to any factory, because it is confidential information as far as we are concerned. I know of two of our larger cities in the state which have demanded of our relief commissions—and these happen to be cities that are appropriating approximately one-third of the relief funds—and they have demanded of our local relief commission that we furnish to them a list of our welfare clients and the amount of the funds which have been given to those clients; and we have refused, saying that that is confidential information.

Q.—What is supposed to govern the conduct of an investigator, along that same line, of giving out information that is supposed to be private?

A.—Any information which the investigator gets is supposed to be confidential. If it is not confidential, if you will give us the facts, we will look into it.

Q.—Where would you take such a complaint—to the local office or to the state office?

A.—Either place. We are perfectly willing to receive it at the state office, and we will have our investigators look into it.

Q.—In case of making a second call before you can reach the investigator (which must be authorized by the investigator) what does that do to your malpractice insurance, your protective insurance?

A.—I don't know just what you mean.

Q.—Supposing your patient is in such a condition that you should have to go back. You have no authorization to go back.

A.—I guess that is a chance you have to take.

Q.—You are responsible if you do not go back, and you get nothing if you are not authorized to go back?

A.—That may be one of your charity cases. I don't know.

Q.—A welfare case.

A.—If it is a welfare case, I don't see any reason why you shouldn't be paid for it.

Q.—You make one call, but you must be authorized before making a second call. You may not be able to get in touch with the investigators.

A.—In case of an emergency again?

Q.—It may be an emergency case.

A.—I don't see why it couldn't be handled under the emergency ruling again.

Q.—Is there a uniform schedule fee?

A.—There is a limited uniform schedule fee.

(At which time Mr. Granger read a list of the schedule fees.)

Q.—May one do surgical work in his office?

A.—He may if he certifies that there is no more danger concerning the operation in his office, and also if it is impossible to get the patient in the hospital.

Q.—Where do you draw that line in chronic cases? Some will tell us that if the person is sick over two months, it is a chronic case. Then if there is another patient who takes sick in that house, that is a chronic case.

A.—There is no definite line on chronic diseases. In general, though, most people, certainly most physicians, have in mind what they would call a chronic disease—chronic, as we consider heart disease, diabetes, et cetera. I might say that within our regulations we allow county commissions to draw up their own rules. It might be that in your particular county—what county are you from?

Q.—St. Clair.

A.—As I understand it, they consider a case chronic after the patient has been ill for two months.

MR. GRANGER: You might be interested to know what the medical program is costing us at the present time; that is, exclusive of funds paid by local counties or boards of supervisors. In January we spent about $211,000.00 for medical care. That was an average of $1.07 per case on relief per month. And that did not include all medical services which were paid for out of local funds or charitable organizations.

Q.—In view of the fact that you suggested that an advisory committee to work on some of these county problems be organized, would your organization recommend a similar committee of a state character, embodying the nurses, dentists, and physicians, for the same purpose? If it is a good county way, wouldn't it be a good state way?

A.—I understand we have such a committee composed of doctors, dentists, and nurses, and some of the doctors on the committee met with us two or three months ago.

* * *

DR. FINCH: I am sure we are very grateful to Mr. Granger for presenting this report.

Dr. C. T. Ekelund, secretary to the Committee on Economics, will now address us.

The Economics Committee

DR. C. T. EKELUND: Doctor Marshall, chairman of the Economics Committee, has asked me to summarize for you the aims of that committee as at present conceived.

With your permission I should like to go back and review the history of that committee. You are all, no doubt, familiar with the voluminous and detailed statistical material which was made available to the profession in the report of that committee in 1933, and also with the general principles which it formulated for subsequent study to elaborate. Whatever differences of opinion may have arisen concerning the ultimate recommendations of this committee the veracity of the statistical material has not been refuted and it stands today as a most complete statement of fact concerning the economics and social aspects of medicine in Michigan.

A continuation of the work led to the elaboration of the plan now known as "Mutual Health Service," which was conceived as a mechanism for collectively budgeting the costs of medical service for families and individuals of small means. The pioneer work done here has been widely publicized and has probably been of great value in orienting the several aspects of the problem as well as pointing the way to a possible solution compatible with American principles. The Canadian Medical Association has formulated principles of their own strikingly like those upon which "Mutual Health Service" is based and our own A. M. A., while deprecating the necessity for health insurance, has set up a table of principles likewise generally concurrent with those adopted here in Michigan a year and a half ago.

The House of Delegates did not feel that it was ready to proceed with any experimental test of the plan as proposed, and decided to wait before further discussing the matter until, or if, federal or state action rendered it more imperative to give further attention to the matter. Following the appointment of this year's committee it was authorized by the Council to proceed with two other matters of considerable importance, a further study of Post Graduate Medical Education, and a survey of medical relief under the State Emergency Relief Administration.

Your committee is now going forward with a study of the results of the new departure in Post Graduate Education which was undertaken in three centers in the State last fall in conjunction with the Department of Post Graduate Medicine of the University, with the view of ascertaining its value and the indications for its expansion.

The second study of the committee is also under way. After several conferences with Doctor Haber of the State ERA a general view of the administration of Medical Poor Relief has been obtained. However since we began this work the FERA has decided to make a rapid intensive survey in some eight or ten counties of this State in order to arrive at some idea of the efficiency and costs under several different types of administration. We understand that this program is not limited to Michigan but since Michigan offers in geography and population a condition analogous to almost every part of the United States, it has been chosen for this survey. It is expected that some twenty or twenty-five thousand dollars will be spent, and the coöperation of committees appointed by the County Medical Societies is asked. To these county committees the district data will be presented and the request is made that judgment on this data be passed by them. The statement is made that much consideration will be given to the expression of such judgment when the final analysis of the data is made. Furthermore,

that a copy of the complete data from all the surveyed counties will be turned over to the Society's Economics Committee or such other committee as shall be appointed by the State Society for their consideration, and again the judgment as expressed here will be given full consideration.

You will recall that the Federal Emergency Relief program was organized in the summer of 1933. During the fall of that year Federal Regulation No. 7 was promulgated which laid down broad principles to be followed in providing medical care. It provided for home and office care only, leaving the burden of hospital care a local responsibility. Provision was made for the sharing of costs between federal, state and local governments. An agreement was authorized between the state and/or local administrators on the one hand, and the state and/or local medical, dental, nursing and pharmaceutical associations on the other, to designate advisory committees to assist and advise in matters of policy and disputes. The traditional family and family-physician relationship was not to be disturbed but on the other hand was not to be established under this plan in view of existing clinics, or other medical and nursing services maintained by local and/or state funds. With the actual operation of the plan in your own counties you are all familiar. During the year and more since its inception much has been learned. Many mistakes have been made and many limitations and difficulties of administration have been disclosed. Most serious has been the failure to keep complete and careful records, during this period of trial and error. As far as I am aware Oakland County is the only one where complete statistical material is available for the full year. Others may be operating as satisfactorily but complete figures are not available for a year, to prove or disprove the point. In Oakland County, with a case load of from 25,000 to 45,000 persons the average cost for complete home medical care has been approximately 1½ cents per person per day. One hundred forty-seven physicians have been paid a total of $89,669.91 during 1934. This represents an average of $600.00 per physician for the year. Actually the variation is between zero and $3,000.00 for the year. Several physicians whose practice is very largely among this type of patients have been spared from actual want by the remuneration under Emergency Relief Administration.

In Oakland County, the total cost of medical relief was 5.42 per cent of the total cost of Relief; of the total cost of medical relief the percentage paid out was as follows:

	Per cent
M.D.s for services	58
Drugs and appliances	13.8
Dentists	13
Nursing	3
Osteopaths	2
Optometrists	2
Chiropractors	0.2
Administrative cost	8
	100

As provided in Oakland County, medical care includes, for the patient:

1. Free choice of physician, with direct family and family-physician relationship. The patient visits or calls the doctor himself, directly.
2. Medicines; on prescription only, for U.S.P. and N.F. drugs. No proprietaries.
3. Special diets when laboratory and x-ray data, and consultation if necessary, proves a diagnosis of diabetes, ulcer, or a nutritional disturbance.
4. Appliances, braces, splints, glasses and false teeth, if special circumstances warrant the expenditure.
5. Special nursing in the home if necessary under special circumstances.
6. Services of a cultist limited to the absolute minimum.

From the standpoint of the physician the plan in Oakland County has been highly satisfactory.

1. It has proven that the profession is to be trusted. Individually and collectively physicians have coöperated 98 per cent. There have been two instances of chiseling which have been dealt with by the Welfare Commission on the advice of the Medical Advisory Committee.
2. It has maintained the traditional physician-patient relationship and thereby maintained the normal competitive spirit even in Welfare practice.
3. The quality of service has not been lowered, provision has been made for laboratory and x-ray aids to diagnosis and for consultation, and it is taken for granted by the administration, by the patient, and by the doctor that the service is the same as for private patients.
4. There is no dictation by administrators or social service workers in matters of medical service, nor is there cumbersome and irritating paper work. The patient on the active relief rolls calls a physician and the physician reports each service on a simple form. There are, of course, certain variations in, and additions to the routine in special cases. I shall try to review the actual procedure in more detail in a moment.
5. These members of the profession who were the hardest hit by the depression are the ones who profit most under this plan.

Some physicians whose practice is largely in areas where unemployment is more marked, have earned from $2,000.00 to $3,000.00 and this represents the major portion of their incomes.

Compared with the welfare load during 1934 the following figures are highly instructive and should prove useful in comparing tabulated statistics in other areas. During 1934, with a case load varying between 25,000 and 45,000, there was:

An average of less than one office call per person. (40,097)
One in every 2 persons called a physician to the house. (16,813 home calls)
One in every 21 persons called a physician at night. (1,500 night calls)
About one family in 17 had a baby born during the year. (473 obstetrical cases)
One in every 25 persons had a minor surgical ailment. (1,357 minor surgical cases)
One in 165 had a fracture. (193 fracture cases)
One in 63 had x-rays of one sort or another. (516 x-rays)
One in 230 had x-ray treatments. (143 x-ray treatments)
One in 37 needed glasses. (870 refractions)

An average of 0.28 miles per call was travelled beyond the first three miles. It should be apparent that the success of the Medical Relief Program of the FERA is much to be desired by the profession throughout the country. Mistakes are of course expected in the trial period of any marked departure from past experience and mistakes have been made in Medical Relief under ERA. It is not possible, at this time to precisely dictate administrative practice in the widely diverse types of communities met with in Michigan but it is earnestly hoped that steps toward uniformity of procedure may be taken before unhappy conflicts arise in any locality to damage the validity of the project as a whole. In Canada, and especially in the Province of Ontario, some disrepute came to the profession because of apparent exploitation of the Relief Ministry by a minority of the profession. Costs had trebled within a year and varied by as much as 250 per cent in different areas. The result has been that the Provincial Government has dumped the whole problem into the lap of the profession and at the present time there is much confusion. County Societies are now making at best rather inept attempts to administer the program, so far with inefficient and inadequate control; they are unwilling to allocate sufficient sums for "overhead" and will probably derive little benefit from a trial and error period because of imperfect records. I mention the experience of Ontario in order to point out that probably a solution which lies between complete governmental control and complete professional control holds greatest prospect of mutual satisfaction. Government has rightly assumed financial responsibility

for medical care of indigents, and having assumed financial responsibility has also exercised administrative prerogative, and the profession, on the other hand may rightly assume certain perogatives of its own, since, after all, it is its services which are being distributed. There is, of course, the eternally raised bugaboo of a top heavy bureaucracy, of costly overhead and onerous supervision by administrative agencies when government runs the show but on the other hand there is the well known and probably inevitable inability of medical men to achieve a degree of communal solidarity and mutual trust in each other. I speak frankly because the point is important and fundamental. Human acquisitiveness being the powerful motive that it is, its effects on human relations had best be recognized and taken into account in any plan postulated upon coöperative effort. Individual differences in habits of practice and in this same acquisitive instinct are difficult to control in any type of administration and bespeak again the necessity for coöperative effort between the governmental administrator's authority and the profession's judgment.

It is not my province to anticipate the report of the Economics Committee in its study of medical relief in Michigan; the study, when completed, should prove most helpful to relief administrators and to the profession alike. It is to be hoped that whatever factual material is available may point out very clearly the way to a more or less uniform mechanism of administration and it should also make available some fairly definite data concerning costs. Beyond this there is, as yet, not much else to be discovered, but it may also be hoped that, directly or indirectly, there will be shown the desirability if not the necessity for close coöperation between administrative agencies and the profession.

DR. CORBUS: Gentlemen, here is a man who needs no introduction. He is to talk to us today about something which is uppermost in our minds, and that is what the federal government, as represented by Congress, is going to do to the pattern of medicine as it is practiced now. He gave me as his subject "The Current Status of Plans for Social Security." With that, as he probably has in mind, he will tell us something about medical participation in those plans.

I take pleasure in introducing to you Dr. Morris Fishbein, Editor *Journal of the American Medical Association.*

Status of Plans for Social Security

DR. FISHBEIN: In preparing myself to talk to you this afternoon, I was not sure as to the exact nature of the audience, as to how much any of you might know in advance about what has gone on and about what is coming. As I look over the audience I see three or four men who have heard me before on this particular topic, and to them I will apologize for repeating, perhaps, some of the things I have said elsewhere on this subject, even here in Michigan.

I propose to carry you down to just about the present hour in the status of this rather peculiar campaign that is going on at the present time between interests representing various groups in the social service profession and in the medical profession and in politics, so that you may be oriented to the condition at present and perhaps be guided by the trend in developing your own plans for the future. It will be necessary for me to go back and point out how we got into the situation as it now exists.

Medicine is largely responsible for the present situation, in that it grew so rapidly from a scientific standpoint that its social relations did not have time to keep up with its scientific advancement.

The costs of medicine have risen to a place in which the average man finds them exceedingly difficult to meet, particularly since at the same time there has been a constant pressure on him to raise his general standard of living and to provide himself with a great many things which were not necessary to a satisfactory living thirty-five years ago.

As many of you know, several reports have been published on the recent economic changes in the United States. As pointed out in the Hoover report, the most significant factor in American life in the past twenty-five years has been the increasing expansion of human desires and wants. The average American is not satisfied unless he can have a motor car, a radio, perhaps a piano. He is not satisfied even with the simple meals of thirty-five years ago, but he has a widely varied and sophisticated diet. This is true even of the recent diets of those on relief. The people on relief in former days used to have coffee and doughnuts, "sinkers" as they were called. Then they began to learn a little about diets, and soup and oranges were prescribed. This doesn't approach the diets of those on relief today. Study those diets for the average person on relief and also the special diets for those who require them, and you will see how much we have moved in respect to that one factor.

We have changed our standard of living, and at the same time we have changed the nature of medical practice, moving from the old-time family doctor who was responsible for all the family's illnesses and health, into a time when we began to require increasing methods and procedures which developed in the hospitals. That required nurses' services, which in turn required nurses' training schools. Shortly after, there was the social service worker, to follow the patient into the home after the work in the hospital was completed. And suddenly we find medicine

practiced no longer by doctors alone, but by a total number of professional workers which amounts to about one and one-half million people, consisting of some 250,000 nurses, 200,000 social service workers—both professional and amateur, and those in it just for entertainment—dieticians, ambulance drivers, x-ray technicians, laboratory technicians, hospital clerks and the general personnel that clutters up the hospital.

At the same time dentistry advanced, and the old-time dentist who worked with a wrench and a pair of pliers has become a highly trained technician and sometimes an artist. And the costs have risen proportionately.

Social service workers make a survey. Everthing is preceded by a survey; and just as soon as we make a survey we find a lot of sore spots. Nowadays when we uncover them we try to give a little first aid. That brought us into the whole picture of social security.

Some have thought that social security meant only medical care, but of course all of us are beginning to realize that social security means far more than medical care. It means provision for a job, provision in old age, provision for the handicapped, the hard-of-hearing, the crippled, the mentally defective, the provision of prenatal care for the expectant mother, maternal welfare, and a great many other things which are included in the thirteen committees—which, I believe, eventually represented the total number in the Technical Advisory Staff of the Committee on Economic Security.

When the reports came in from the various bodies that studied medical care, the reaction of the medical profession is familiar. It was rather pleased with the report of the Commission on Medical Education. It brought out a few very simple things that the average doctor could comprehend: that there were probably too many doctors in a great many places; that there should probably be more doctors in other places; that hospitals were put down without any real scientific analysis as to why a hospital should be in that particular spot.

The report of the Committee on the Costs of Medical Care might be considered a too forward-looking report. It predicated a Utopia in which all human beings readily sink their desires and their initiatives and their advancements, in the one purpose of getting medical care in times of illness. It recommended the establishment in each hospital of a complete staff. It looked toward the set-up around that hospital of a lot of human beings who were willing to sink themselves into the scheme and have their medical care carried out by the staff of doctors there. It was the type of machine that would work perfectly and develop a great amount of saving of time and money and effort, if it were not for the fact that it would be dealing with human beings. If it were for nails, bolts and nuts, it would have worked perfectly, but the moment you inject the human factor, such a system would —as I insisted in my first editorial on the subject — change the entire American scheme of individual responsibility and initiative to a scheme that was essentially communistic. And as we read the reports of the various social workers and other writers in the field today, I think we come more and more to a realization of the fact that what they are striving to establish in the United States is essentially the scheme of medical care that exists in Russia today.

Briefly, it embodies the employment of all physicians by the state, complete control over the nature of the work of all physicians, the distribution of these physicians in the hospitals. It does provide for a scheme of compulsory post graduate study by the doctor. This is probably the outstanding virtue of the Russian system. But I would still contend that such a system of post graduate study as has been worked out in the State of Michigan and which leaves a certain amount of initiative to the doctor, is far superior to any compulsory system of post graduate work which drives the doctors into a post graduate course.

President Roosevelt, just before departing on a vacation for Hawaii, announced that on his return his legislative objective would be the establishment of social security for the American people. In order to establish social security, he set up a committee of five, which consisted of Henry Morgenthau, Secretary of the Treasury; Henry Wallace, Secretary of Agriculture; Miss Perkins, Secretary of Labor; Harry Hopkins, Federal Relief Administrator; and Homer Cummings, Attorney General. That committee was authorized by the President to make an investigation into the need for social security in the United States and to bring to him a report following his return from his vacation, so that he might bring to the Con-

gress of the United States a message and a bill in order to provide greater social security for the American people.

This committee of five then set up a Technical Advisory Staff, headed by Witte, of the University of Wisconsin, who was trained in economics, in the whole problem of insurance, and the application of insurance to various methods of living. He had been associated with various state efforts, including the workmen's compensation law of that state. Mr. Witte came to Washington as head of the Technical Advisory Staff, and he set up at once a group of thirteen assistants or technical advisors, each of whom was in charge of some one phase of the social security program. He put one man in charge of the question of unemployment, one in charge of the question of unemployment insurance, another in charge of the question of hospitals and public health, one in charge of old age and maternal welfare, the care of the handicapped, and so on. Thirteen in all. Eventually we come to medicine, which was headed by Sydenstricker, of the Milbank Foundation. Mr. Sydenstricker had views which were well-known to the medical profession, because when the Committee on the Costs of Medical Care brought in its majority report, it also brought in a minority report, and also several individual minority reports. It was interesting to note that a man who was so anxious to have the entire country put on a completely social basis, demanded his own minority report.

Editor's Note.—To complete in this issue of the JOURNAL, this discussion of the progress of the President's Social Security Plan as so interestingly described by Dr. Fishbein, it becomes necessary to brief the rest of his speech.

Dr. Fishbein, continuing to trace the procedure, noted that the Technical staff went on working "without much of a medical representation on the Technical Advisory Staff." On the President's return he decided to get additional advice, and appointed a General Advisory Board consisting of capitalists, labor leaders, attorneys, but again no physician. It was announced that this Board would have a good deal to say in relation to the Federal recommendations which would be submitted by the President to congress.

Shortly afterwards from Miss Perkins' office, presumably with the advice of the President, there was appointed a Board of Medical Advisors. "Most of you know the names of the members of this Board. They were not there representing the organization of which they were officers, but merely as distinguished medical men in whom the President had confidence."

Eventually a special meeting of the combined committees was called in Washington for the purpose of discussing the entire subject of social security. Dr. Luce of Michigan was brought in to present his point of view in respect to many of these problems, and Michael Davis was put up almost in opposition to Nathan B. Van Etten. On the completion of this meeting the boards retired for the discussion of such plans as would be proposed by the Technical Advisory Staff. "The Medical Advisory Board was presided over by Mr. Sydenstricker, head of the Technical Staff. It is said that Mr. Sydenstricker stated that he did not care particularly for any discussion by them of the insurance principle but that all he wanted was general advice."

This Medical Advisory Board had two meetings. "As you know, the entire service of this Medical Advisory Board has not been particularly satisfactory to them or to the Technical Advisory Board or to Miss Perkins or to us or to anybody else.

The Medical Advisory Board are beginning to feel that they were brought down there for what we could call a background or a "set up."

Between the first meeting and the last the Committee on Economic Security brought out its report with the thirteen principles which it proposed to develop in the field of insurance. "It was," says Dr. Fishbein, "to the great surprise of the Medical Advisory Board of the Technical Advisory Staff that these things were announced. They considered them somewhat premature. They did not know they were going to be announced and they were not ready for such an announcement nor to support that announcement.

It was this report from the Committee on Economic Security that occasioned the necessity for a special meeting of the House of Delegates of the A. M. A. This meeting in Chicago in February came out with a new series of understandings in relation to these problems. The House of Delegates reiterated their twelve principles fundamental to any scheme of sickness care adopted at the Cleveland session, and considered certain other phases, all of which are familiar to you from JOURNAL publications.

The Bureau of Economics of the A. M. A. announced that it would bring into the House of Delegates its own local plan at the next meeting.

Dr. Fishbein discussed some of the bills before congress, particularly the Wagner-Lewis bill which, as originally presented, puts the control of sickness insurance, unemployment insurance and old age pensions under a special social service board to be set up by the Department of Labor appointed by the Secretary of Labor. He said, "We are assured that when the Wagner-Lewis bill comes out of committee it will not contain any reference to sickness insurance, and in addition to that that when the bill now known as the Wagner-Lewis-Houghton bill comes out the Social Service Board will be removed from the Department of Labor to a place directly under the President as an independent unit. Furthermore that the maternal and child welfare and the care of the handicapped will be taken from the Children's Bureau in the Department of Labor and put under this social service."

Here we have the set-up of a new unit in the government to handle medical care, but with no reference as to whether a medical man will be in charge of it.

Dr. Fishbein further discussed the activities of the American League for Social Security headed by Mr. Abraham Epstein. The purpose of this organization is to provide so-called model bills for sickness insurance to be presented to various state legislatures. Dr. Fishbein says the Epstein bill is a vicious bill, a bill which would do tremendous harm to the medical profession, a bill which economists say would be bound to bankrupt any state if it met the conditions it is set up to meet.

Dr. Fishbein then discussed the action of the House of Delegates of California, who recently adopted, but not unanimously, a recommendation, that a special committee of the House of Delegates confer with a committee of the Legislature to develop for the state of California a system of compulsory and voluntary sickness insurance. The bill proposed is the Epstein bill with certain guards directed to giving some protection to the profession. Commenting on California's action and disapproving of the action, he noted that there were before the California state legislature some five bills relating to medical care, each of which threatened the profession. He assumed that with these bills before the legislature the California Medical Association found itself in a spot where it felt that it must take some action.

In closing, Dr. Fishbein continued, "So that is the picture of the situation. I might say that the A. M. A. is following all of this legislation very carefully. We are satisfactorily represented when the necessity occurs for us to appear before different committees or groups."

PERMISSION TO OPERATE

Dr. William J. Stapleton, secretary of the Medical-Legal Committee, calls attention to the uncertainty in the minds of many members of the profession as to what constitutes, from a legal standpoint, "permission to operate." Two recent suits in which the plaintiff seeks damages because further surgery was performed than was indicated on the basis of pre-operative diagnosis, make it advisable that there be presented the following information:

Dr. William C. Woodward, Director of the Bureau of Legal Medicine and Legislation of the American Medical Association, has made the following comments in a letter to Doctor Stapleton:

"The study this Bureau is making with respect to forms evidencing the consent of the patient and of other necessary parties to various hospital procedures has not as yet been tabulated or analyzed in a form adequate for release. However, I enclose herewith copies of three forms prepared by this Bureau in connection with the uncompleted study. You will notice that in these forms the patient or person consenting does more than authorize a certain operation, he authorizes an operation "for purpose of relieving" the patient of a stated ailment or condition. The consent is a consent to whatever measures or procedures the physician deems necessary to relieve the stated condition, whether those measures were or were not contemplated at the time the consent for them was signed.

"Of the three forms enclosed each serves a definite purpose. Form 1 is to be signed by the patient. Form 2 is to be signed by persons other than the patient whose consent is necessary or whose consent may be obtained for expediency or safety. Form 3 is to be signed by patients who object to permitting the physician to exercise his own discretion as to unexpected conditions revealed during the operation and who for that reason desire to delegate a designated person the right to act for them during the time the patients are under anesthesia. No form has been prepared to meet the situation where because of the patient's lack of capacity to consent, consent must be obtained from his spouse, parents, or guardian, and the necessary parties to that consent desire to delegate their authority during the course of the operation to some third person, somewhat analogous to the situation presented in Form 3. Such a form would be very seldom used, for I assume that, under the circumstances, any representative of the patient with such decided views would be in the hospital during the course of the operation and readily available to consent to or forbid further procedure."

"With respect to what persons should be required to sign these consent forms, I offer the following suggestions. If a patient is a sane adult, his or her consent alone is sufficient. If a patient is a married man or woman and mentally competent to consent, the consent of the other spouse is not necessary but it probably would be expedient to obtain it if convenient. However, no pressing or emergency operation should be deferred until that consent is obtained. If the patient is married but is mentally incompetent, the consent of the other spouse should be obtained. If the patient is an incompetent unmarried adult or if the patient is an unmarried minor, competent or otherwise, the consent of the parents or of the guardian should be obtained. However, in the case of an emergency an operation on any person without the consents indicated above, would not subject the operating physician to liability."

Appended hereto are the three forms commented upon by Doctor Woodward which have been prepared by the Bureau of Legal Medicine and Legislation.

Form 1

I hereby authorize and request Dr. ..... to operate on me for the purpose of relieving me of..... .....and to do whatever he deems necessary to that end.

I further authorize and request him, if any unforseen condition arises in the course of the operation, calling in his judgment for procedures in addition to or different from those now contemplated, to do whatever he deems proper in my interest.

Signature of Patient.....

Date.....
Witness.....

NOTE: This form is to be executed by the patient. If the patient is a sane adult his or her consent alone is sufficient. If a patient is a married man or woman and mentally competent to consent, the consent of the other spouse is not necessary, but it probably would be expedient to obtain it if convenient. However, no pressing or emergency operation should be deferred until that consent is obtained.

If the patient objects to the grant of authority contained in the second paragraph of this form, use Form 3.

Form 2

I
We hereby authorize and request Dr.....
to operate on.....
my
our.....for the purpose of
relieving .....of .....
and to do whatever he deems necessary to that end.

I
We further authorize and request Dr.....
if any unforeseen condition arises in the course of the operation calling in his judgment for procedures in addition to or different from those now contemplated, to do whatever he deems proper in the interest of the patient.

Signatures.....
.....

Date.....
Witness.....

NOTE: This form is to be signed by the person or persons other than the patient whose consent is necessary or whose consent may be obtained for expediency or safety. If a patient is married but is mentally incompetent the consent of the other spouse should be obtained. If the patient is an incompetent unmarried adult or if the patient is an unmarried minor, competent or otherwise, the consent of the parents or of the guardian should be obtained. However, in the case of an emergency an operation on any person without the consents indicated above, would not subject the operating physician to liability and failure to operate until such consents had been obtained might well result in liability.

If the representative of the patient objects to the grant of authority, contained in the second paragraph of the form, use Form 3.

(Whether a surgeon will or will not proceed to operate if the patient will not permit him to exercise his own judgment and requires him to depend in the course of the operation on authority from some third person to perform procedures that the operation has shown to be necessary, is a matter which any surgeon will do well to consider carefully before proceeding under the form that follows.)

Form 3

Patient's authorization to operate, coupled with the designation of an agent or a representative to act for the patient while the patient is unconscious or otherwise unable to exercise judgment or to give valid consent.

I hereby authorize and request Dr..... to operate on me for the purpose of relieving me of..... .....and to do whatever he deems necessary to that end.

I delegate to.....authority, if any unforeseen condition arises in the course of the operation while I am incapable of acting for myself, which condition calls, in the judgment of Dr..... for operative procedures in addition to or different from those now contemplated, to consent on my behalf to Dr. .....'s doing whatever in the judgment of said.....is proper in my interest. I assume full responsibility for any action said..... may take in this matter.

Signature.....
Date.....
Witness.....

Consent of Patient's Representative

I, ... named above to act for this patient while she is undergoing the operative procedures authorized above and unable to act for herself himself

being informed by Dr.....that an unforeseen condition has arisen in the course of that operation calling for procedures in addition to and different from those contemplated when the above consent was executed by the patient, that the patient is in his judgment incapable of exercising rational judgment and giving a valid consent with respect to further operative procedures, and being fully informed as to the necessity, desirability, and risk involved in the additional procedures advised by Dr.....and named below, do hereby authorize Dr..... to.....

Signature.....
Date.....
Witness.....

NOTE: This form should only be used when the patient refuses to sign Form 1. If the patient is a sane adult his or her consent alone is sufficient. If a patient is a married man or woman and mentally competent to consent, the consent of the other spouse is not necessary but it probably would be expedient to obtain it if convenient. However, no pressing or emergency operation should be deferred until that consent is obtained.

MINUTES OF THE MEETING OF THE EXECUTIVE COMMITTEE OF THE COUNCIL

The Executive Committee of the Council convened in Ann Arbor at 8:00 P. M., Wednesday, March 27, 1935. Present, Chairman Powers, Doctors Heavenrich, Luce, Boys and Carstens. There were also present Councilors Cummings, Baker, Urmston, President-Elect Penberthy and Secretary-Elect Ekelund.

The Secretary presented a letter from the State Emergency Welfare Relief Commission dealing with certain bills, apparently irregular, and involving in total a considerable amount, which have been rendered by two members of the Society, presumably with the coöperation or consent of the local Administrator and asking for suggestions as to the method of handling this delicate and possibly serious situation. On motion, the Secretary was instructed to write the Commission that we desire to make further investigation, through the Councilor of the District, and to state that the Society hopes that an explanation will be forthcoming which will be satisfactory and the well earned reputation of the profession of this state for conscientious, honest and efficient work may continue to be 100 per cent justified.

The Secretary announced that he had received a communication from the Secretary of the Ottawa County Medical Society, stating that the Society had gone out of existence and that they were surrendering their charter to the State Society. He announced that he had requested Dr. R. H. Nichols of Holland to come before the Executive Committee and discuss the occasion for this action of his Society. Dr. Nichols appeared before the Committee and stated that a notice had gone to the State Secretary in January reporting that "a petition that the present organization disband" signed by ten members of the Society had gone out to all County members and calling for a special meeting for action on February 12. Also that a further notice had gone to the State Secretary announcing that on February 12 the Ottawa County Medical Society on vote of 24 in favor and 4 opposed had decided to surrender their charter. This action of the Ottawa County Medical Society was discussed at length and on motion of Heavenrich and seconded by Luce, the Committee voted to declare the charter void.

The Secretary now announced that he had a request from a group of doctors, meeting in Grand Haven on February 19th, for a charter under the name of the Ottawa County Medical Association that they may become a component unit of the Michigan State Medical Society and the American Medical Association. The Secretary also stated that at the time of disbanding, the Ottawa County Medical Society had 33 paid-up members.

Further discussion ensued and on motion of Luce, seconded by Heavenrich and carried, the Secretary was instructed to issue a charter to the Ottawa County Medical Association as a component unit of the Michigan State Medical Society when satisfactory By-Laws were presented and the usual formalities were satisfactorily accomplished.

(There has been presented to this office during the last few days a roster of membership for this new Society of 33 members.)

Annual Dues

The Secretary called the Committee's attention to that section of the By-Laws providing that—"Any member in arrears after April 1 of each official year shall stand suspended" and noted that the House of Delegates at the last meeting voted a new By-Law which provides that—"Members who become rein-

stated by the payment of back dues shall not be entitled to medico-legal protection during their period of arrears." The Secretary requested action to permit an extension of time for the payment of dues until April 15th. On motion of Boys, seconded by Carstens, this action was taken and the Secretary instructed to write each County Secretary to this effect.

The Secretary stated that he had offered to members in arrears for payment of notes and for payment of the medical history a one-third reduction, with receipt in full, if paid promptly. On proper motion, this action was approved.

A communication from the Wayne County Medical Society under date of March 27 was presented, containing the Penberthy-Honor resolution and the McLean-Kennedy resolution, the first referring to the federal survey of SERA activities and the second urging the establishment of the Wayne County plan for a Medical Service Bureau in other counties.

On proper motion, the Secretary was instructed to note in his next letter to the Secretaries that the American Medical Association is now studying plans providing for the care of the indigents and those of marginal incomes, through the County Society as a medical group, and suggesting that each County Society study these plans as presented and consider such other similar plans as may be peculiarly adapted to the requirement of their own county. It was further suggested that a contact be made with the FERA for a discussion of the Penberthy-Honor resolution.

A communication was presented by the Committee on Preventive Medicine on the subject of "A Tuberculosis Bureau in the State Department of Health." Doctor Foster of the Preventive Medicine Committee was invited in to discuss the communication and brought out that this suggestion is in anticipation of an increased allocation of funds to the State Department of Health by the federal government. The plan, as outlined, was endorsed by the Committee under proper motion after certain minor changes had been made. This motion by Heavenrich, seconded by Carstens and passed, carried the instruction to the Secretary to submit this plan to Doctor Slemons, State Health Commissioner, for his consideration.

Lay Secretary

The Committee appointed to consider the employment of a Lay Secretary presented a report. It was the opinion of this Committee, as stated in their report, that as no emergency exists the Committee meet again at a later date to consider—

1. The man for the place.
2. When he should be employed.
3. Salary or salaries.
4. The Wayne County proposal.

with the note that it is suggested by Doctor Urmston that any man recommended be elected by the whole Council. A free discussion on this report finally left the matter in the same position.

Councilor 5th District

Chairman Powers presented the resignation of Doctor Burton R. Corbus as Councilor of the 5th District.

January 30, 1935

Dear Doctor Powers:

For some time I have been considering resigning from the Council. It seems to me that I am in an anomalous position as councilor and secretary. Apparently this is satisfactory to the Council and to the profession, yet one might question whether my district is as fully represented as it should be, at a time when matters of moment are before us.

My term of office as Councilor has but one more year to run, and I had long ago determined that I would not stand for re-election. This is, as you know, my third term, and during that period the Council has seen fit to place upon me a considerable amount of responsibility. It has been exceedingly gratifying to me that I have had the opportunity to play a part in the accomplishments of this Society during this period, for Michigan now stands among the foremost of forward looking state societies of the country. I shall have a prominent part, by virtue of the secretary's office, in the activities of the next few months which I anticipate will be epoch making.

Taking all things into consideration I deem it wise to present to you, and through you to the Council and the President, my resignation to take effect at the next meeting of the Executive Committee.

I confess that I do so feeling that I am giving up something which, while it has entailed a certain degree of sacrifice and much work, has yet been of real pleasure to me. The greatest part of that pleasure has been the opportunity of working with this splendid body of men, and making, through this association, some very real and dear friends. It is my earnest hope that this friendship will not lapse during the years when necessarily contacts will be less frequent.

A copy of this letter will go to President Smith.

Very sincerely yours,
(Signed) BURTON R. CORBUS

The resignation was accepted, after discussion, upon motion made by Carstens and seconded by Heavenrich, the motion including the resolution that the Executive Committee for the Council express its regret at the resignation and its appreciation of Doctor Corbus' long years of service for medicine and the Michigan State Medical Society.

The Chairman then read a communication from President Smith, nominating Dr. Vernor M. Moore of Grand Rapids to fill the unexpired term of Doctor Corbus. This nomination was approved by proper motion and the Secretary instructed to notify Doctor Moore.

The Secretary presented the matter of the Annual Meeting and stated that it was his intention to go to the Soo during April, that he had received certain blue prints of space which would seem to indicate that ample facilities were available for meetings and exhibits. He stated that blue prints of the space available for commercial exhibits will go out early in June, as has been the custom. No early applications for preferred space, which usually form a nucleus of the sales, have so far come in. On motion of Dr. Penberthy properly seconded and carried, the Secretary and the President were authorized to make plans for General Sessions and in consultation with Section Chairmen determine the program.

BURTON R. CORBUS, *Secretary*

COUNTY SOCIETIES

EATON COUNTY

The March meeting of the Eaton County Medical Society was held at the Carnes Tavern Hotel, Charlotte, Michigan. A dinner at 7 P. M. was followed by the scientific program of the evening.

Dr. Forrest Huddleson of Michigan State College presented in a very interesting and instructive way the story of "Undulant Fever." Dr. Huddleson stated that there are three distinct types of bacteria causing the disease and that these are found in different animals—melitensis usually associated with infection in goats, abortus in cattle and suis in swine. By determining the type one can thus more easily determine the source of the disease in man. The disease has been found in nearly all lower animals that are domesticated, the cow, hog, goat, dog, cat, chicken, wild birds, etc., probably it is also a disease of migratory birds.

The clinical manifestations in both lower animals and man were discussed. Skin tests with highly purified nucleoprotein of the organism is a most help-

ful way of detecting whether or not the patient has become sensitized to the organism. If this test is negative one can say with certainty, it is believed, that the patient in question does not have undulant fever; however, if the test is positive it is no certainty that the patient has the disease. This test is analogous to the tuberculin test. Should the skin test be positive one can by determining the opsonic index tell how active the process is. The agglutinins as well as the opsonians are used to give an index as to the body's reaction to the organisms.

The antigen that Dr. Huddleson has perfected is of use in the treatment. This antigen is made by growing the bacteria in a culture medium and filtering off the organisms. One begins by first determining through an intradermal skin test of .1 c.c. of the antigen whether or not the patient is sensitive. If not, the antigen can be gradually increased. Sometimes it is necessary to give rather large doses before a favorable body response is obtained. It is believed that the reaction in the sense of temperature, chill and malaise has nothing to do with the building up of resistance to the disease. The members showed by their discussion of undulant fever, the attention they had given Dr. Huddleson.

Motion was made by Dr. Paul Engle of Olivet and seconded by Dr. A. G. Sheets of Eaton Rapids that the W. K. Kellogg Foundation through the local health department continue the tuberculin tests in some of the rural schools. Carried unanimously.

The motion was made by Dr. Engle that the society through the local health department hold a health clinic for preschool children this coming year. Unanimously carried.

After a discussion of the postgraduate work proposed by The Kellogg Foundation the meeting adjourned.

JOHN LAWTHER, M.D., *Secretary*

ST. CLAIR COUNTY

A regular meeting of the St. Clair County Society was held Tuesday, April 16, 1935, at the Harrington Hotel, Port Huron, Michigan. Twenty-five members and five guests were present. The president introduced Mr. Stitt of the local insurance underwriters, who spoke for ten minutes upon the economic necessity for accident and life insurance from the standpoint of the physician. The minutes were read and approved. Several communications were read. The president spoke briefly concerning the work of the unofficial committee working at Lansing and urged the members who had not paid their special assessment of $3 to do so as soon as possible. A motion was carried to the effect that in the future no sales talks be made before the Society unless previous approval had been given by the Society. A motion congratulating our fellow member, Dr. T. E. DeGurse, upon his election as Mayor of Marine City, was carried.

Dr. W. H. Gordon of Detroit addressed the Society upon the subject of "Agranulocytosis." The speaker reviewed the early literature upon the subject dating as far back as the middle of the nineteenth century and outlined his findings as to the etiology of a series of sixty-five cases at the Harper Hospital, Detroit, as well as two hundred odd cases reported in the literature. The speaker stated that about 6 per cent of all the cases in the above groups seemed to have an etiologic basis in the administration of amidopyrin and the drugs of the barbital group. Benzol compounds and many other causative factors have been given in the opinion of writers. The speaker believes that the true pathology is in a defect of the bone marrow. Treatment by means of whole blood and nuclein as well as general care seems to be most efficacious.

GEORGE M. KESL, *Secretary-Treasurer.*

WOMAN'S AUXILIARY

MRS. F. T. ANDREWS, President, Kalamazoo.
MRS. F. M. DOYLE, Secretary, Kalamazoo.

Items from National News Letter of March, 1935

Mrs. Robert W. Tomlinson, President of the Woman's Auxiliary to the American Medical Association, states:

"If you have read the last copy of the *Bulletin* you will have learned much of the many pleasurable events that are being planned for our diversion at the time of our annual meeting in Atlantic City in June. We have, this year, an unusual opportunity to be of real help to our men by doing our utmost to make the visit of our Canadian friends a pleasant one. It is my understanding that this will be the largest medical meeting that the world has known. The Medical Associations of the two largest countries in North America will join together, and ours is the joy that will come in extending our hands and opening our hearts to our northern neighbors. It is my hope that each of us to whom is charged responsibility, will have completed every preparation well ahead of time so that our days may be as unencumbered with unnecessary duties as possible. The program that the Convention Committee is planning for our interest and pleasure is one of great attraction. Never will we be far from the sun, sea air, and the Board Walk. Our meetings, as well as most of our social events, will be within sight of the great Atlantic Ocean.

"To each and every member I send my hearty thanks and deep appreciation of what your loyalty to your husbands' profession has done to arouse enthusiasm for the type of work and pleasure that the Auxiliary may promote.

"Will you pass these words along to the wife of every physician, that while the Auxiliary may have the opportunity of making plans for this meeting by the seas, only the coöperation of every Doctor's wife will carry these plans through to a happy fulfillment. We hope that each and every one of them will join with us in our welcome to the Canadian women, and share with us whatever may be of interest and pleasure to them."

Springfield (Missouri) Auxiliary assisted in the service rendered by the Y.M.C.A. to 120 boys of FERA families. Besides the personal service given by the members of the Auxiliary, a cash donation was given to further the work at hand.

The Duchesne County (Utah) Auxiliary boasts of being more than 100 per cent in membership. This Auxiliary has enrolled every eligible doctor's wife and a sister of a woman doctor. And, every member is a *Hygeia* subscriber.

January was chosen Physical Examination Month in Texas. During this month the Auxiliary put on an intensive drive to the end that every doctor, his wife, and children have a complete physical examination. The slogan adopted for the campaign was "An inventory of my health, as well as my wealth."

The Elbert and Madison County Auxiliaries (Georgia) have raised $750 and $700 respectively, to forward the work of the new Child Welfare Councils.

Orleans Parish (Louisiana) Auxiliary is deeply interested in the Social Hygiene Lectures given in New Orleans. The group has donated $25.00 to aid in bringing Dr. Valerie Parker to New Orleans to give these lectures to the school girls. In one month 1,500 girls in high schools heard these lectures.

In September the Florida Medical Advisory Board and the State Auxiliary Board held a joint meeting to formulate some definite work for the coming year. After these plans had been approved by the State Medical Association they were sent out to the various county groups throughout the state. This outline I am passing on to you, as it is one of the finest examples of its kind that I have seen.

There are seven divisions in the program each covering an entirely different phase of work. Very briefly they are, as follows:

1. Let each member at all times hold herself in readiness to serve on health committees of any outside organization.
2. Assist in the dissemination of good health literature by means of an enlarged circulation of *Hygeia.*
3. Give your wholehearted coöperation to the program of Cancer Prevention, and arrange, if possible, one public presentation of Cancer Prevention material in your County.
4. Assist in the organization of new county auxiliaries.
5. Hold yourself in readiness to give as wide support as possible when called upon by the State Legislative Committee.
6. Present to as many organizations as possible the talk on "The Necessity of Health Cards for Household Servants."
   (Note—this talk deals with the necessity for requiring household servants the same health certificate that is at present required of food handlers. This is advocated for the purpose of lessening the danger from venereal disease as well as tuberculosis.)
7. Use at least one study envelope during the year. These are for your information and will prove of much value to you if you will choose one or more and assign topics to different members for presentation.

Reading List

1. The Evils of Social Insurance—Medical Annals of the District of Columbia—February, 1935.
2. The Shortcomings of Health Insurance—By H. M. Camp, Secretary Illinois State Medical Society. Illinois Medical Journal, February, 1935.
3. Catechism of Sickness Insurance—Ohio State Medical Journal, February, 1935.
4. Animal Experimentation — Editorial Hygeia, March, 1935.

MRS. LLOYD C. HARVIE, Press Committee

Jackson County

Several features marked the March meeting of the Woman's Auxiliary to the Jackson Medical Society, held at the home of Dr. and Mrs. John Ludwick. Mrs. E. D. Crowley and Mrs. T. E. Hackett acted as co-chairmen. The committee assisting was composed of Mrs. E. G. Wilson, Mrs. W. L. Faust, Mrs. W. L. Finton and Mrs. George Seybold.

Richard Scammon spoke of "The Art of Puppetry." He told of the beginning of the marionettes and their progress through the ages. Their entry into the movies formed a greater part of the talk. He displayed many of his models and explained their workings.

A delightful musical program was presented by Bobby Corley, son of Dr. and Mrs. Cecil Corley and George Cox, son of Dr. and Mrs. Ferd. Cox. Janet Magoon, Gordon Smith and Earl Peterson also contributed to the musical program.

Saginaw County

The serious and the funny were blended Tuesday night, March 19, when 35 members of the Woman's Auxiliary to the Saginaw County Medical Society met for dinner and an enjoyable program at the Hudson party house.

A review of Sir William Ostler's "Evolution of Modern Medicine" was the serious feature of the program and a "Clara, Lu and Em" skit, satirizing social and economic problems of the medical profession, was the hilarious conclusion of the evening.

Mrs. Oliver W. Lohr reviewed the book on the evolution of Medicine. Mrs. L. C. Harvie, Mrs. Robert Jaenichen and Mrs. Julius H. Powers took parts in the skit, in which Dr. Morris Fishbein's recent lecture to the Wayne County Medical Auxiliary on "Food Fads" made an important contribution.

Mrs. Walter K. Slack, vice president, presided in the absence of Mrs. J. A. McLandress. Dinner was served at tables prettily decorated with orchid tapers in crystal holders, pink sweet peas in crystal bowls and smilax. Mrs. C. W. Ely won the house prize. The committee in charge of arrangements included Mrs. Jaenichen, Mrs. W. H. Pickett and Mrs. Emil Richter.

Wayne County

As announced, a seven-day exhibit of paintings and handicraft work consisting of pottery, hammered brass, painted china, photography, sculpture, oil paintings, drawings and water colors was held from April 12 to April 19 in the Wayne County Medical Society club rooms under the auspices of the Woman's Auxiliary of the Wayne County Medical Society. This was the second annual exhibition of hobbies by members of the medical profession, their wives and families. At the regular meeting of the society, April 12, sixty-two new members were presented. The program among other things consisted of a very interesting demonstration of the making of pottery by Mrs. Milton D. Vokes. Saturday afternoon was devoted to the children's exhibit. An interesting program was held Sunday afternoon consisting of violin and piano by Drs. Robert Berman and V. R. Marburger. Dr. William Fowler (Weelum) contributed a poem written for the occasion on hobbies. This was followed by an interesting talk by Dr. Parker Heath on "Art." Then followed a tea and inspection of the various hobbies on exhibition. Mrs. Frank Hartman opened the afternoon program with an address of welcome, after which she called to the chair Mrs. J. H. Dempster, chairman of the Art Committee. Monday, Tuesday, Wednesday and Thursday following, talks on some aspect of art were given by Mrs. George L. Waldbott, Mr. Henry Morton, Mrs. Jack Agins, Mrs. L. M. Bush, and Mrs. Milton Darling furnished the music for the various occasions. The exhibitors were as follows:

Mrs. Jack Agins, three oil paintings; Dr. Emil Amberg, seven black and white sketches (heads of well-known men); Mrs. Arthur R. Bloom, two oil paintings and six colored crayons; Mrs. Lowell M. Bush, three oils, three colored crayon sketches, one architectural drawing, six pieces of sculpture in Ivory soap, and one oil painted plaque; Mrs. W. E. Coon, two figure crayons from life and six drawings in design; Mrs. J. H. Dempster, two oil paintings; Mrs. Donald L. Drummond, three pieces of pottery; Dr. Charles Dutchess, one bronze head; Mrs. William Fowler, twenty-two pieces of china, one brass tea pot and three water colors; Dr. Parker Heath, one water color; Mrs. B. Hjalmar Larsson, one figure in sculpture; Mrs. Ignatz Mayer, one

oil painting and five watercolors; Dr. Edward S. Sanderson, one copper tray and one copper plaque; Dr. A. E. Schiller, seven photographs; Miss J. Slachter, two watercolors; Mrs. George L. Waldbott, eleven black and white anatomical drawings; Dr. H. F. Warden, two oils and one water color; Mrs. Milton D. Vokes, thirteen pieces of pottery and figure sketches in clay.

Young People's Department—Helen Betty Bush, six drawings, one poster and one oil plaque; Edna Hartman and Halline Hartman, one bowl (landscape garden); Inga Larsson, ten drawings; Bjorn Larsson, five drawings; Elrine R. Schiller, four watercolors and three crayons (black and white); Solveig Larsson, nine drawings.

THE LIVES THAT'RE LIVED IN HOBBIES*

WILLIAM FOWLER, M.D.

Ah! Come, ye bonnie lassies, o' oor medical profession,
Come gaither close aroon' me, sit ye doon in easy fashion,
Ah hae somethin' for tae tell ye, somethin' new, that's come tae licht,
'Boot th' husbands o' th' order, wha are stayin' oot at nicht.

Weel, ye see, it's this way, lassies—in this land o' equal richts,
Men are fond o' ha'in' hobbies—gi'in' vent tae appetites,
Doin' somethin' on th' quiet—tyin' knots in fancy rope,
Or makin' busts o' nudists, oot o' guid auld Ivory soap.

Ah'm nae for tellin' secrets, 'boot th' men wi' whom ah wander,
Ah wid raither ask yer pardon, be lenient wi' yer partner,
For it may be that he's busy, doesna ken how minutes pass,
When he's playin' wi' his hammers, hammerin' oot a piece o' brass.

Noo, it may be different wi' inither maun ye ken,
He may hae a different hobbie, ane that pleases ither men,
Some hae pots o' paint an' brushes, worshippin' an auld Raphael
An' blendin' colors on a canvas, their story, there, tae tell.

An' there's ithers wi' their kodaks or perhaps a movie cam
Snappin' here an' there a picture—mountain side or river dam,
Or maybe a group o' neebors, ca'in' at their but an' ben,
Whose faces they'll preserve forever, in th' albums o' their den.

There are crafts that fit th' individualistics o' each man,
An' he'll gi' a fine expression tae his likin' when he can,
He'll hae his muscles hardened, contracted firm an' tense,
As he satisfies that likin', makin' oop an iron fence.

Noo, ah've heard aboot some lassies, an' th' way their hames adorn,
How they've stenciled walls an' ceilin's, working frae th' early morn,
Fired wi' a zeal expandin', creatin' beautious castles,
An' frae modest hoos expenses, making' ornate tints an' tassels.

An' we hae th' anes among us wha's delightful work wull show,
An inspiring touch o' genius frae auld Michael Angelo;
They are carvin' marble faces, statuettes or fountain bowls
For the' joy o' doin' something their sublimer life unfolds.

There are those, too, wha are makin' sketches o' anatomy,
Drawin' muscles, bones and vessels or some real pathology,
Etchin' things on bronze or paper, pencilin' outlines o' a tree,
Paintin' dreamland's bonnie pictures that brings joy tae you an' me.

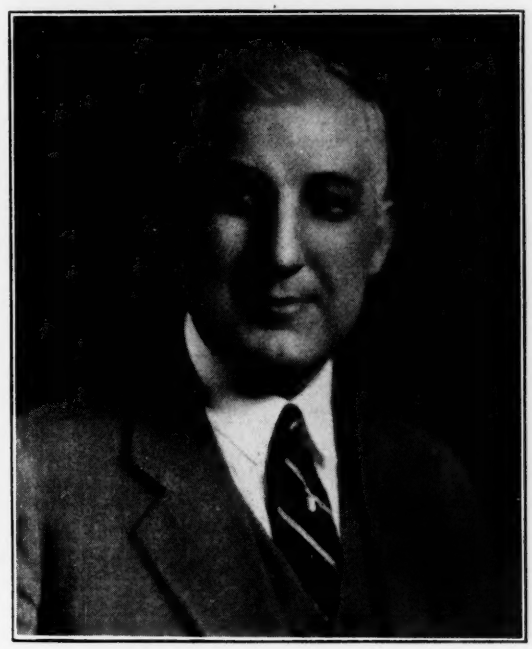
Oh, th' charm oor freen's bequeath us by their modest work o' art,
Can no be in collections or sold upon th' mart.
It's a thing that is ethereal, fills oor souls wi' great delight,
An' th' lives that's lived in hobbies shine as stars when it is night.

*Composed especially for the occasion of the annual hobby exhibit.

OBITUARY

Dr. G. H. Ferguson

Dr. George Harry Ferguson died at his home in Saginaw, Michigan, March 1, 1935. He was born of Irish Scotch parentage at Burr, near London, Ontario, April 3, 1877, and remained on the farm



DR. G. H. FERGUSON

until 21 years of age. Graduating in medicine, he began to practice in Saginaw in 1903. About this time, he married Miss Helen Bernard of London, and she along with two sons, John and William, survive him.

Doctor Ferguson was an active member of the County, State, and National Societies; and for years was president of the St. Luke's Hospital Medical Staff. He specialized in Obstetrics, but was best known as a much beloved family physician, whose cheery words of encouragement brought comfort to many Saginaw homes.

Because of our intimate acquaintance, I desire to pay a personal tribute to the high character of his work, to his sterling integrity, and to the esteem in which he was held, not only by his confrères but by the community at large. His passing is a community loss.

W. F. ENGLISH, M.D.

Dr. J. G. R. Manwaring

Dr. J. G. R. Manwaring of Flint died at his home April 17 after an illness of three years. Dr. Manwaring was born in Imlay City in 1877. He attended and passed from the Lapeer High School to the University of Michigan, where he obtained his medical degree in 1901. Following two years as interne in the University Hospital, Dr. Manwaring began practice in Flint in 1903. He carried on a general practice until 1913, when he limited his practice to surgery. He was fellow as well as one of the founders of the American College of Surgeons. Dr. Manwaring was extremely active in medical affairs and had served on committees for county,

state, and national medical organizations. He was one of the originators of the Flint Wranglers Club, a discussion organization, whose members were composed of business and professional leaders of Flint. Dr. Manwaring is survived by his wife whom he married in 1904; two sons, J. G. Manwaring, Wellesley Hills, Mass., and John T. Manwaring, student at McGill University, Montreal; and a daughter, Mrs. T. C. McGee, of Flint. Dr. Manwaring was a member of the Genesee County, Michigan State and American Medical Associations.

Dr. Frederick P. Bender

Dr. Frederick P. Bender of Detroit died April 8, 1935. Born August 9, 1874, at Ceresco, Michigan, Dr. Bender was educated in the Marshall High School, Albion College, and the University of Michigan, obtaining his medical degree from the University of Michigan in 1902. For seventeen years he practiced medicine in Caro. During the World War he was captain in the Army Medical Corps. He came to Detroit in 1919. Dr. Bender was a member of the Wayne County Medical Society and the Michigan State Medical Society. His wife Eunice, two daughters, a son, a stepdaughter, three brothers and two sisters survive.

MICHIGAN'S DEPARTMENT OF HEALTH

C. C. SLEMONS, M.D., Dr.P.H., Commissioner
LANSING, MICHIGAN

Communicable Diseases in 1934

The year 1934 showed some interesting developments in the cases of communicable disease reported. A total of 486 cases of typhoid fever was reported in 1934, compared with 453 cases reported in 1933, and a mean of 441 for the preceding five years. While this represents a slight increase in the number of cases, it is not believed that there were actually more cases of the disease, but that the reporting was somewhat better, as our Bureau of Communicable Diseases has kept in very close touch with all cases of typhoid fever in the past year.

Diphtheria, which has shown enormous declines in the last few years, presented a new low for 1934, with 614 cases reported. There were 1,152 cases in 1933 and 12,075 in 1921. This means that in the twelve years diphtheria has decreased about 95 per cent.

Whooping cough remained practically stationary, there being 11,255 cases reported, as compared with 11,720 in 1933. Scarlet fever showed a considerable increase, rising from 16,418 cases in 1933 to 19,238 cases in 1934.

The year 1934 was distinctly not a measles year, there being 6,497 cases reported for the year, as compared with 42,129 in the peak year of 1932. During the closing months of the year, however, the incidence showed a marked tendency to rise, and it is probable that we will have a large number of cases reported in 1935.

There were only 49 cases of smallpox reported in 1934, as compared with 46 cases in 1933. In comparison with the mean of 1,190 cases for the preceding five years, it is interesting that 1934 reported only about 4 per cent of the expectancy.

Meningococcus meningitis cases reported totalled 53, as compared with 86 in the preceding year. Poliomyelitis increased, with 230 cases reported in 1934 as compared with 93 in the preceding year.

One of the very interesting developments was the sharp increase in the number of cases of pneumonia reported. There were 4,889 cases in 1934 and 4,034 in 1933. We know that pneumonia is never completely reported and in view of the fact that there was no apparent increase in influenza incidence it would be interesting to know why we had an increase of 20 per cent in our number of reported cases of pneumonia as we have no reason to think that the reporting was any more complete in 1934 than in 1933.

There was a considerable falling off in the number of cases of tuberculosis, there being only 5,700 reported in 1934 as compared with 6,624 in 1933. It seems evident that the tuberculosis death rate will show a decrease in 1934 but the figures are not yet complete.

Two diseases which are relatively new from a public health standpoint, but seem to be of increasing significance, are tularemia, of which there were 12 cases reported in 1933 and 21 in 1934, and undulant fever, variously called Malta fever and Mediterranean fever, of which there were 81 cases in 1933 and 102 in 1934.

Measles

The measles outbreak predicted for the spring months materialized as anticipated. During January, February and March of 1935 there were reported 15,947 cases. The greatest number of cases reported in any one year was 42,129 in 1932, and, in the first three months of that year were reported, 6,308 cases.

The present outbreak began much earlier than the one three years ago and has every appearance of equalling or exceeding it in number of cases reported. Relatively few communities have so far been visited and these communities have had quite sharp but local outbreaks. Some of the communities first affected were Ironwood, Marquette, Hillsdale, Saute Ste. Marie, Flint, Detroit, Niles, and Genesee and Oakland Counties.

Many inquiries have come from physicians as to a supply of convalescent serum or placental extract to be used for the prevention or modification of measles. Because of the scarcity of these products and as a substitute for them, the Michigan Department of Health has advocated the use of adult whole blood to be injected intramuscularly during the fifth or sixth day after exposure. This procedure modifies the attack and leaves a lasting immunity.

Additions to Biologic Plant

Four of the six buildings being constructed at the biologic plant of the Michigan Department of Health under an FERA grant, using welfare labor, have been completed. These include a small animal house, an operating room for bleeding, injection and necropsy of horses, a root cellar for the storing of roots for winter feeding, and a storage warehouse.

The two buildings still under construction are an addition to the main laboratory and another small animal house for quarantine.

In spite of the handicap of winter weather, construction has proceeded with great rapidity and in an exceptionally satisfactory manner. The cost has been less than the contractor's estimate.

New Staff Physician

Ruth E. Stocking, M.D., has been appointed to fill the vacancy on the staff of the Bureau of Child Hygiene and Public Health Nursing caused by the resignation of Dr. Goldie Corneliuson. Doctor Stocking's work will be the teaching of Women's Classes in Child Care, and her first schedule will open in Clinton County on April 22.

Talks to County Medical Societies

Physicians from the State Department of Health have given talks on the use of the biologic products distributed by the department to twenty-eight county or district medical societies comprising 44 counties. There are still several societies from which invitations have been received that have not been visited. The response and interest have been very good.

GENERAL NEWS AND ANNOUNCEMENTS

Dr. B. H. Van Leuven, Councilor of the Thirteenth District, was elected mayor of Petosky at their recent election.

* * *

Dr. Angus McLean was elected member of the Detroit Board of Education for the third time, polling over 125,000 votes.

* * *

The nineteenth annual clinical session of the American College of Physicians will be held in Philadelphia April the twenty-ninth to May third.

* * *

Dr. H. L. Huber, University of Chicago, was the speaker at the April meeting of the Calhoun County Medical Society, Battle Creek. His subject was "Allergy in Everyday Practice."

* * *

Dr. Richard R. Smith, president of the Michigan State Medical Society, returned to his home in Grand Rapids the last of March after a six weeks' sojourn at Nassau, Bahama Islands.

* * *

The Ear, Nose and Throat division of Harper Hospital, Detroit, held a special clinic, May the third, from nine to eleven o'clock, during which time outside otolaryngologists took part in the program.

* * *

The Annual Harper Hospital Alumni and Staff Dinner will occur on May 23, 1935, at the Recess Club in the Fisher Building, corner of Second and Grand Boulevards, at 7 P. M., $2.00 per plate. All former internes are cordially invited to attend.

* * *

Detroit during the week of April the eighth to April the thirteenth was the host city of the annual convention of a very important scientific body, The Federation of American Societies for Experimental Biology. Nearly all the papers and addresses presented had an important relation to clinical medicine.

* * *

Academy of Physical Medicine

The annual meeting of the Academy of Physical Medicine will be held June 12 and 13, at the Claridge Hotel, Atlantic City, New Jersey. For further information address Arthur H. Ring, M. D., secretary-treasurer, Arlington, Mass.

* * *

The Michigan section of the American College of Physicians met at the University Hospital, Ann Arbor, March the twenty-eighth, and listened to a very interesting program, symposium, on the Human Constitution by various members of the medical faculty. Dr. J. D. Bruce, member of the Board of Governors of the College, presided. After dinner a general discussion on the subject of Post-Graduate Medical Education took place.

Dean Irving S. Cutter of the Northwestern Medical School, Chicago, addressed a joint meeting of the Wayne County Medical Society and the Woman's Auxiliary to the Medical Society, April the eighth, on the subject "Contemporary Medicine." This was the final of a series of six lectures on the History of Medicine, the other five by members of the Medical Society on Medical History, before the Woman's Auxiliary.

* * *

An intensive program of public education for the conservation of sight of men, women, and children (everybody) was presented in Detroit, April eighth to April thirteenth, under the auspices of the Detroit Department of Health and Board of Education with the coöperation of the National Society for the Protection of Blindness. The program consisted of popular lectures each day before various audiences, nurses, teachers and welfare social workers, students and others.

* * *

A new state Tuberculosis Sanitarium is to be erected at Gaylord, Michigan. The addition to the State's hospital system will be built from malt tax funds in accordance with a law passed by the 1933 Legislature, setting aside $250,000 of such money for the purpose. The law provided that the money should be set aside by the state treasurer on March 31, 1935, and construction started immediately. The State Department of Health has already approved the proposed site, one mile north of Gaylord at the highest point in the Lower Peninsula.

* * *

The Detroit Branch of the American Urological Association met at the Statler Hotel on Wednesday, March 20, at 3 P. M. The afternoon program was under the direction of Dr. H. W. Plaggemeyer. Papers were presented by Dr. Wm. E. Keane, Dr. Carl Weltman, Dr. Harold Morris and Dr. Reed Nesbit of Ann Arbor. The afternoon program was followed by a dinner at 7 P. M. The evening program consisted of Symposium on Stricture of the Urethra. Papers on this subject were presented by Dr. Fred Cole, Dr. Charles McIntyre of Ann Arbor and Dr. E. L. Bradley of Pontiac. About forty members of the Association attended this meeting.

* * *

More and more, medicine and the fundamental sciences become associated in the common effort for the good of mankind. The following program is especially suggestive of a joint interest in the newer things in physics and their application to medical research.

THE INSTITUTE OF RADIO ENGINEERS
The Detroit Section
Regular Meeting
Friday, April 19, 1935
—Subject—
ELECTRONICS IN MEDICINE

Under the direction of Dr. P. F. Morse, Director of the Laboratories of Harper Hospital, a very interesting program has been worked out. The various subjects and speakers will be:

"New Concepts of Physics as Related to Medical Research"
Dr. Kenneth Corrigan, Ph.D.

"Demonstration of Apparatus for Measurement of Skin Temperature, Colorimetry and Dielectric Loss Angle in the Human Body"
P. F. Morse, M.D., and G. D. Coolidge, B.S.

"Measurement of Nerve and Muscle Chronaxie by Condenser Discharges"
P. F. Morse, M.D.

"Demonstration of High Voltage X-ray Equipment Used in the Treatment of Cancer"
Dr. Trian Leucutia, M.D.

* * *

Will Accept Any But Mental Cases

One hundred additional beds have been made available for veterans at Marine Hospital, Windmill Point, Leon B. Gridley, director of the Detroit

Servicemen's Bureau, announced April 16. The addition raises the total accommodations for veterans at Marine Hospital to 150 beds. The grant of 100 beds was made by the United States Public Health Service as the outgrowth of a trip to Washington last February by Detroit representatives of the Veterans of Foreign Wars, American Legion and Disabled American Veterans. All types of cases, except mental, will be accepted. Disabilities do not have to be connected with war service.—*News item from Daily Press.*

* * *

Medicine in Vienna

Doctor Douglas Owen, formerly of Fort Wayne, Indiana, for the past three years at the head of the American Medical Association in Vienna, addressed the Wayne County Medical Society April the fifteenth. In substance, Dr. Owen said, Vienna was in his opinion the best medical center in Europe to study pathology. All cases are hospitalized and all deaths followed by autopsy. Wages and professional fees were very low. A full time professor received the equivalent in American money of $1200 a year. The fee for a thorough eye examination including refraction was ten cents. A doctor did well if he got a new suit of clothes once in three years; automobiles for professional classes were out of the question; doctors walked in making their professional rounds. This is in visiting patients whose illness was not severe enough to entitle them to hospital care. Once in the hospital the private physician was no longer in control. The American doctor going to Vienna can get along without a knowledge of any other language than his own. The professors and docents spoke excellent English. The cost of living in Vienna was about the same as in an American city if one lived on the same scale. Many Viennese doctors occupied only two rooms, one of which was used as an office by day and sleeping quarters for himself and family at night.

THE DOCTOR'S LIBRARY

Acknowledgment of all books received will be made in this column and this will be deemed by us a full compensation to those sending them. A selection will be made for reveiew, as expedient.

WHAT YOU SHOULD KNOW ABOUT HEART DISEASE. Harold E. B. Pardee, M.D., Asst. Professor of Clinical Medicine, Cornell University Medical School; Associate Attending Physician, New York Hospital, etc., Second Edition, thoroughly revised. Small 12 mo. 127 pages. Illustrated. Cloth $1.50. Lea & Febiger, Philadelphia, Pa., 1935.

The chief purpose of this book is to help the patient to follow his physician's directions intelligently. Many times his fears are exaggerated and he feels that his doctor is misleading him or is not being sufficiently frank. He wants a clearer conception of the importance or unimportance of such ominous sounding terms as "murmur," "leaking valve" or "enlargement." He wants to know what is harmful for him to do and he seeks instructions sufficiently detailed so that he may not fail to grasp anything of vital importance. This book tells the patient just what his physician wants him to do and enables him to assimilate its sound directions at his leisure.

A TEXTBOOK OF SURGERY, For Students and Physicians: By W. Wayne Babcock, A.M., M.D., LL.D., F.A.C.S., Professor of Surgery and of Clinical Surgery in The Temple University; Surgeon to The Temple University Hospital and to the Philadelphia General Hospital, Chief of the Surgical Service, U. S. General Hospital No. 6, 1917-1919. Second Edition, Rewritten. 1312 pages with 1032 illustrations and 8 plates in color. Philadelphia and London: W. B. Saunders Company, 1935. Cloth, $10.00 net.

In this second edition of Babcock's surgery the author has revised every chapter and he has rewritten much of the text. In addition to much new material we have 150 new illustrations. There are new sections on the parathyroid glands, the sympathetic nervous system, the duodenum, the mesentery and omentum, the epiphyses, and the malacias of bone. The author also discusses the relative sensitivity of tumors to radiation therapy, particularly in regard to the indication for x-rays and radium and the grenz rays. The newer anesthetics are considered, among then vinyl ether, cyclopropane, evipan sodium, avertin, nupercaine, tutocaine, pantocaine as well as intravenous and rectal anesthesia. So complete is this as a single volume that it is difficult for the reviewer to select any chapter or section of superior excellence. As a working section, however, for the physician in general practice the chapter on bones will have a special appeal since he sees most of the fractures and dislocations first. In addition to bone pathology proper, the subject of bone injuries is dealt with graphically in pictures as well as concisely in the printed text. The latest and most approved methods of treatment are given in detail. For the surgeon of experience the work will constitute a convenient manual or desk book. It is completely indexed for ready reference.

COLLENS DIET WRITING. By Wm. S. Collens, B.S., M.D. Brooklyn, N. Y. Chief of Diabetic Clinic, Israel Zion Hospital. Form Publishing Co., 200 Hudson Street, New York City. Price $5.00.

The reviewer is so well impressed with this "System of Diet Writing," which includes a Diet Calculator and Diet Formulary, that he keeps it handy on his desk and uses it frequently. There are many diet forms put on the market in these days when prescriptions for diet are so commonly required. This is one of the best, and for diabetic calculations, one of the simplest. It is in loose leaf form, forty-two pages, to which is added one hundred Menu Prescription Forms, and makes a book nine by six inches, convenient for desk reference.

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